

REPORT

ON THE

Public Health Administration of the Punjab

AND

Proceedings of the Urban Sanitary Board

FOR THE YEAR 1928

BY

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Director of Public Health, Punjab,

AND

The Report on Sanitary Works for 1928

BY

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(The text of the Public Health Report is limited to 20 pages and that of the
Superintending Engineer, Public Health Circle, to 4 pages.)

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*Proceedings of the Punjab Government (Ministry of Local Self-Government)
in the Public Health Department, No. 31972-P. H., dated the 21st
October 1929.*

READ—

THE Report on the Public Health Administration of the Punjab for the year 1928.

REMARKS.—The general summary of the somewhat unusual climatic conditions of the year, with which the report opens, shows that the Punjab received some compensation for the damage to its crops in the shape of definite benefit to health, and these healthy conditions reacted on the vital statistics and resulted in a record increase in the population. The Province will be able for some years to come to absorb this increased population in view of the extension of canal irrigation and formation of new colonies still in progress.

2. Government observe with some concern that this rise in the population has increased rather than diminished the serious shortage of women in the Punjab, and agrees with the Director of Public Health that the most hopeful method of attacking this problem is by concentration on measures designed to promote the welfare and improve the health of womanhood, and so, if possible, to bring down the excessive female death-rate to a figure nearer that of the males of the Province. In this connection Government have noted with satisfaction the progress achieved in the field of maternity and child welfare. The success of various centres, especially the Gujrat centre under the guidance of Mrs. King and the Rewari centre under the guidance of Dr. Chandar Bansi, and the increased co-operation between the welfare centres and the hospitals give ground for solid satisfaction, and Government are indebted to Miss Simon and Miss Raynor for the results of their labours in this field during the past five years. The rate of infantile mortality, though lower than the previous average, is yet high enough to show that the Province is still only making a beginning in this important field, and that the need for more maternity centres and health visitors is still great.

3. The general healthiness of the year under review was marred by a very sharp outbreak of cholera in the Kulu valley where the disease had practically never appeared before. The previous healthy history of the valley was responsible for there being only one hospital in the valley and for the absence of any public health staff. The disease took serious form towards the end of May, but by a combination of unfortunate accidents the news of the serious nature of the epidemic did not reach the Director of Public Health until the 5th June. Immediate steps were taken to despatch assistance to Kulu, but owing to the particularly inaccessible situation of the valley and other causes it was some time before the relief measures were in full working order. This outbreak and the measures taken to deal with it have been the subject of a special enquiry as a result of which steps are being taken to place the Kulu valley in a position to meet future outbreaks with equanimity and to deal with them promptly when they arise. Throughout the epidemic the small staff of officers, civil and medical, stationed in Kulu acquitted themselves in a manner which has earned the special commendation of Government. The special public health staff on its arrival dealt with the outbreak in a determined manner and the epidemic was soon under control. In this connection Government desire to congratulate the Public Health Department on the success of the measures taken to prevent the disease spreading over the watershed into the Sutlej valley and the Simla Hill States, where the opportunities for medical assistance are few and far between, and down the Sutlej into Simla and the plains of the Ambala division.

Arrangements are now being made to station a small public health staff permanently in Kulu to deal with emergencies that may arise in future, and to prevent the heavy loss of life inseparable from an epidemic which is able to obtain a firm hold on the population before the necessary measures to check it can be taken. Government desire to take this opportunity of expressing their sincere sympathy with the relatives of all those who lost their lives in the epidemic.

4. Apart from the epidemic in Kulu, the cholera record of the year was satisfactory. Elsewhere there were small outbreaks but these were promptly tackled and stamped out. The Public Health Department and the Engineers of the Public Health Circle are particularly to be congratulated on the excellent arrangements made in connection with the Sun Eclipse fair at Thanesar attended by approximately 700,000 pilgrims in November. Elaborate arrangements were made for the sanitation and convenience of the immense concourse, and a special water supply scheme drawing water from three tube wells and distributing it by pipes to standposts throughout the area was constructed in almost record time just before the fair. Cholera was brought to the fair by infected pilgrims, but owing to the excellent arrangements made was unable to obtain a serious hold.

5. For the second year in succession the Punjab came off lightly in the matter of plague. The energies of the department were concentrated on intensive rat destruction in potential danger spots, and it is to be hoped that these measures will continue to bear fruit.

6. Cholera, small-pox and plague are popularly regarded as the chief scourges that afflict the Province, but a comparison of the following figures of deaths during the year shows that the havoc wrought by these diseases is relatively unimportant when compared with the loss from the diseases generally grouped as fevers and from the diseases of the respiratory system :—

Cholera	...	...	...	...	2,034
Small-pox	...	...	...	...	8,764
Plague	...	...	...	...	9,922
Fevers	...	...	...	...	316,235
Diseases of the respiratory system			...	...	52,639

In the category of fevers the most important disease is undoubtedly autumnal malaria, and the fact that the year under review was not a bad malaria year accounts in large part for the total figures for fevers being only three-quarters of the average of the past five years.

7. The high mortality from diseases of the respiratory system is a matter of grave concern when viewed in the light of the opinion held by the Director of Public Health that these and other diseases are to a large extent preventible. It is the considered opinion of the Director of Public Health that the high incidence of pulmonary tuberculosis in Lahore and Amritsar and other large cities is due to insufficient attention being paid to drainage and sanitation, and Government trust that these remarks will be taken to heart by the committees of the towns concerned, and that serious efforts will be made by them to put their houses in order in this respect.

8. Government have read with interest the report of the Superintendent Engineer, Public Health Circle, from which it is clear that a large number of sanitary

Appendix A.

works of public utility have been constructed or are under construction. Reference has already been made to the special water supply scheme for the Thanesar fair, and in addition many other water supply and drainage schemes have been completed. The completion of such schemes is, however, a beginning only, and it is on the successful maintenance and working of the schemes by the local bodies concerned that the safety and convenience of the public depend. Government have read with grave concern the remarks of the Director of Public Health to the effect that several instances came to notice during the course of the year of the complete ruin of costly plants owing to the negligence of the local body concerned, and one or two particularly glaring cases are already under the consideration of Government. Government desire once again to emphasize the personal responsibility of members of local bodies for loss and waste which are the immediate result of their culpable negligence, and where such culpable negligence is established the liability to make good the loss will be enforced. It is regrettably obvious that local bodies in a large number of cases fail to make adequate financial

arrangements for the maintenance of their water-works. All such schemes should be made self-supporting, and that this is not the case at present is clearly brought out in the report. A piped supply of pure water is one of the greatest blessings that can be brought to the homes of the dwellers in towns, rich and poor alike, and a very moderate water tax coupled with the metering of all private connections is sufficient to provide all necessary running costs with a reasonable margin for repairs and replacement. The Urban Sanitary Board has now drawn up a suitable model set of bye-laws for water supply and Government will in future not sanction any grant for the construction of water-works until they are satisfied that these bye-laws will be accepted and duly enforced.

9. The vital importance to the life of the Province of adequate public health arrangements in every sphere of the department's activities cannot be exaggerated, and it is impossible within the confines of a short review to express the considered views of Government on all the important matters dealt with in the report. The omission of any reference in this review to any specific aspect of the department's activities must not be interpreted as meaning that such aspects are in the eyes of Government relatively unimportant. Attention has been directed to certain of the more pressing matters, and for the rest Government must leave the report to speak for itself.

10. Government have read with pleasure the list of sanitary works of public utility executed by individuals throughout the Province and desire that their appreciation should be conveyed to the gentlemen concerned.

11. Government desire to thank Lieutenant-Colonel C. A. Gill for an interesting report and for a year of progress and good work generally. Lieutenant-Colonel Gill has earned a reputation extending beyond the Province as an expert on all matters concerned with epidemics, and his strenuous labours over a number of years are undoubtedly bearing fruit. The district medical officers of health, of whom there is now one in every district except Simla, are proving their value by the prompt measures they are able to take whenever an epidemic appears, and it is an instructive fact that the only place in the whole Punjab where an epidemic was not tackled and suppressed as soon as it appeared was the isolated valley of Kulu which had no public health staff at all, a defect which Government have now arranged to remedy.

ORDER.—Ordered that copies of this review be circulated with the report and be furnished with the usual number of copies of the report to the Government of India; also that the review be published in the *Punjab Government Gazette*.

Ordered further that a copy be furnished to the Director of Public Health, Punjab, for information.

By order of the Punjab Government,
(Ministry of Local Self-Government)

FIROZ KHAN, NOON,
Minister for Local Self-Government.

ALAN MITCHELL,
Secretary to Government, Punjab;
Transferred Departments.

SECTION I.—Meteorology.

1. The rainfall during January and February was normal or in slight defect in the plains of the Punjab, whilst in March it was only half or less than half of normal. The winter rains were therefore in slight defect, but the most striking feature of this period of the year was the development of an unusually deep depression on March 4th which was followed by wide-spread gales and dust-storms during the three following days. This meteorological happening well illustrates the extreme susceptibility of the Punjab to vagaries of climate, for not only was this prolonged dust-storm responsible for a partial failure of the wheat crop (due to shrivelling of the immature grain), which necessitated remissions of land revenue to the extent of Rs. 40 lakhs, but, as will be mentioned later, there is reason to believe that the low atmospheric humidity prevailing during its continuance exercised an appreciable effect—in this case beneficial—upon the public health.

In April, as the result of the arrival of a series of depressions from the west, the rainfall was approximately normal, whilst the temperature was unusually low during their passage and abnormally high in the intervals between them. May was abnormally hot and dry, the rainfall being less than a quarter of normal.

A temporary extension of the Arabian Sea current, which preceded the arrival of the monsoon, caused a rain-storm on the 8th June and a further fall in the hills on the last day of the month. The total rainfall of the month was, however, in moderate defect. The main monsoon current penetrated into the Punjab early in July and was responsible for heavy rainfall from the 7th—10th of the month, which was followed by a “break” until the 23rd of July, when a fall of 4 inches occurred in Lyallpur. The total rainfall in July was normal in the south-west, and in moderate defect in the rest of the province.

The most conspicuous feature of the monsoon of 1928 was the prolonged “break” in the rains between July 23rd and the last week of August. Following this rainless period, during which the relative humidity was much below normal, heavy rainfall, as the result of the arrival of a depression from the Bay of Bengal, occurred on the 30th and 31st August and September 1st, during which Sialkot, Ambala and Lahore received 4 inches, Lyallpur and Rawalpindi, 6 inches, and Dipalpur in Montgomery district, 11 inches. These heavy falls were responsible for widespread floods in the districts of Gujrat, Jhelum and Shahpur, as the result of which many villages were washed away—fortunately there was no loss of human life—and serious damage was caused to canal head-works and railway lines.

As much of this rain fell on September 1st, the total rainfall for the month of August remained in considerable defect, being a little over a quarter of the normal. The rainfall in September, owing mainly to the heavy falls on the first two days of the month, was over 50 per cent. in excess of normal in a large part of the province, but elsewhere it was in defect. October and November were, as usual, almost rainless months, but a spell of wet weather, induced by the arrival of the first of the winter depressions from the west, occurred at the end of November and the beginning of December, and the rainfall of these months, as well as the atmospheric humidity, was in consequence, except in the south-west of the province, somewhat above the normal.

2. The average price of the principal food grains in seers to the rupee prevailing in the chief markets of the Punjab in the year 1928 and in the two preceding years is given in Table I.

Economic conditions.

TABLE I.

Locality.	WHEAT.			BARLEY.			JOWAR.			BAJRA.		
	1926.	1927.	1928.	1926.	1927.	1928.	1926.	1927.	1928.	1926.	1927.	1928.
1. Lahore ...	7½	8½	7½ ³ / ₁₆	9¾	11·0	10¾	7½—8½	7½ ⁵ / ₁₆ —9¾	10½	6½ ⁷ / ₁₆ —7½ ⁹ / ₁₆	9·0	8½ ⁴ / ₁₆
2. Multan ...	7½ ³ / ₁₆	8·0	7½ ³ / ₁₆	10¾	11¾	10½ ³ / ₁₆	7½—8½	7½ ⁵ / ₁₆ —9¾	10½ ¹ / ₁₆	6½ ⁷ / ₁₆ —7½ ⁹ / ₁₆	9·0	9·0
3. Ambala ...	7½	8½	7½	11½	11½	9½	...	...	...	...	...	...
4. Rawalpindi...	6¾	7½	7½	10½ ³ / ₁₆	11½	10·0	7½—8½	...	9·0	6½ ⁷ / ₁₆ —7½ ⁹ / ₁₆	9½	8½ ⁴ / ₁₆

From a scrutiny of the figures given in Table I it will be seen that, as compared with the previous year, a slight rise in the price of wheat and barley—the staple food-grains of the province—occurred in the year under review. On the other hand the average price of the less valued food-grains was appreciably lower in 1928, in the case of jowar, than in the two preceding years, whilst it was steady or slightly higher in the case of bajra. The slight increase in the cost of living scarcely calls for remark. There was no economic stress of sufficient importance to affect the public health and it speaks well for the prevailing prosperity that a partial failure of the spring harvest (*rabi*) and the almost complete failure of the autumn harvest (*kharif*) should have exercised so little effect upon the cost of living. The quinquennial wages survey, which was carried out in December, 1927, showed that wages were generally slightly lower than they were at the census taken in the year 1922.

3. The meteorological circumstances of the year were on the whole more favourable to health than to the agriculture. If the low winter rainfall and the dust-storms in March adversely affected the wheat crop, they were also distinctly unfavourable to plague. Again, if an almost rainless July and August destroyed the fodder crops, it was also responsible for the extreme salubrity of the autumn.

It will shortly be shown that the year 1928 achieved the distinction of being absolutely the healthiest year in the recorded history of the province, and it must therefore be concluded that, although certain vagaries of climate exercised a prejudicial effect upon agriculture, they were not an unmixed evil, since they had the compensating advantage of being favourable to health.

SECTION V.—Vital Statistics.

GENERAL REVIEW.

4. **Population.**—The census population in March 1921, which is the figure on which all birth and death-rates in this report are calculated, was 20,517,606, whilst the estimated population on December 31st, 1928 was 22,285,553. The natural increase of the population during the past 7¾ years was, therefore, 1,767,947 or an average of 228,122 *per annum*. In the year 1927 the natural increase of the population reached the exceptionally high figure of 304,008, but in the year under review the increase of population was even greater, being 442,696, or approximately twice the mean annual increase during the past 7¾ years. This figure is not only remarkable but it constitutes a record in the annals of the Punjab, and it affords striking evidence of the recuperative power of the population under favourable conditions of health.

All districts of the province shared in this increase which was most conspicuous in Lyallpur district and least evident in Kangra and Simla districts.

Largely as the result of epidemics of plague during the years 1924 and 1926 the population of many districts was smaller, at the end of the year 1926, than the census figure, but during the past two years this decrease has not only been made good but, save in Karnal district, the estimated population of all districts at the end of the year 1928 exceeded the census figure.

The estimated population on December 31st, 1928, comprised 12,151,641 males and 10,133,912 females, the number of males thus exceeding the number of females by 2,017,729, as compared with 2,000,201 at the end of the preceding year.

This slight increase in the already great preponderance of males over females would appear to be due to the fact that, in a country where the female death-rate normally exceeds the male death-rate, and where the male birth-rate is invariably higher than the female birth-rate, relatively more males are added to the population in exceptionally healthy years. It is obvious, therefore, that the solution of the problem presented by the serious shortage of females in the Punjab calls for measures specially designed to promote the welfare and improve the health of womanhood.

5. **The state of the Public Health.**—In no previous year since vital statistics became available have the people of the Punjab enjoyed such remarkably good health as in the year 1928.

The death-rate was, it is true, slightly lower in the year 1922 and the birth-rate was a little higher in the year 1889, but in no year has so high a birth-rate been associated with so low a death-rate, and it thus comes about that the figure 21·58 *per mille*, which represents the difference between the birth-rate and the death-rate, has never been exceeded in the recorded history of the Punjab. The annual birth and death-rates during the period 1868-1928 is shown graphically in Chart I.

The provincial death-rate in 1928 was 24·72 *per mille*, which represents a reduction, as compared with the preceding year—itself an exceptionally healthy year—of 2·74 *per mille*, and 8·94 *per mille* as compared with the mean annual death-rate of the preceding five years.

The provincial birth-rate was 46·30 *per mille*, which figure exceeds the birth-rate of the previous year by 4·03 *per mille* and the mean annual birth-rate of the preceding quinquennium by 4·86 *per mille*.

The main cause of the low death-rate and the high birth-rate was the remarkable freedom from epidemics and more especially the exceptionally low incidence of plague and malaria. The death-rate recorded under each of the major heads of mortality is given in Table II together with the mean figures for the preceding five years :—

TABLE II.

Year.	Cholera.	Small-pox.	Plague.	Fevers.	Dysentery and Diarrhoea.	Respiratory diseases.	Injuries.	All other causes.	Total.
1928 ..	0·10	0·43	0·40	15·41	0·51	2·57	0·36	4·95	24·72
1923-27 ...	0·17	0·40	4·44	20·17	0·54	2·55	0·32	5·08	33·66
Increase or decrease in 1928.	—0·07	+0·03	—4·04	—4·76	—0·03	+0·02	+0·04	—0·13	—3·94

From a scrutiny of the figures given in Table II it will be seen that the "fever" and plague death-rate declined, as compared with the quinquennial mean figure, by 4·76 and 4·04 *per mille*, respectively. A small decrease (0·07 *per mille*) also occurred under the head of "cholera", and a decline of 0·03 *per mille* took place under the head "dysentery and diarrhoea" and of 0·13 under the head "all other causes". On the other hand a small increase occurred under the head of "small-pox" (+ 0·03); "respiratory diseases" (+ 0·02); and "injuries" (+ 0·04).

The infantile mortality-rate was also exceptionally low, the number of deaths of infants under 1 year of age per 1,000 births being 167·62, as compared with 167·50 in the previous year and a mean figure of 193·57 in the preceding quinquennium. That the infantile mortality-rate should not have been lower than it was in the previous year is surprising and it may possibly be that the phenomenally high birth-rate during two consecutive years created, amongst the poorer classes, conditions relatively unfavourable to infant nurture. The annual infantile mortality-rate during the period 1880-1928 is shown in Chart II.

The year 1928 was thus associated with an extremely high birth-rate and an exceptionally low total death-rate and a low infantile mortality-rate.

It is customary to institute a comparison between the birth and death-rates of the Punjab and those of other provinces—and the figures for the year 1928 are accordingly given in Table III.

TABLE III.

Province.	Birth-rate.	Death-rate.	Excess of birth-rate over death-rate.
Punjab	46·30	24·72	21·58
Central Provinces	46·51	33·66	12·85
Bihar and Orissa	38·27	25·29	12·98
Bombay	38·17	27·28	10·89
United Provinces	38·24	24·15	14·09
Madras	37·40	26·40	11·00
Assam	31·24	22·16	9·08
Burma	25·85	21·28	4·57
North-West Frontier Province	32·52	19·31	13·21
Bengal	29·57	25·55	4·02

The Punjab usually enjoys the distinction of exhibiting the highest or second highest birth-rate of any province of India and it maintained its position during the year under review. On the other hand, the Punjab frequently occupies the unenviable position of being first, in order of magnitude, in respect of its death-rate. In the year 1928 it takes sixth place, but it again takes the first place in respect of the excess of the birth-rate over the death-rate.

The fact that in a year so exceptionally healthy as 1928, the death-rate of the Punjab should be higher than that of four other provinces is partly ascribable to its extremely high birth-rate; for it follows, since children under one year of age normally contribute from one-third or to one-fourth of the total deaths, that in a province in which the birth-rate is normally 10—15 *per mille* higher than that of others, the total death-rate must, on this account, be relatively high.

6. **Births.**—The total number of births registered during the year was 919,930 or 46·30 *per mille* of which 500,397 (24·1 *per mille*) were males and 449,533 (21·9 *per mille*) were females, the corresponding birth-rates of the preceding year and of the previous five years being 42·3 *per mille* (22·3 males and 20·0 females) and 41·4 *per mille* (21·9 males and 19·5 females), respectively. The birth-rate calculated on the estimated population was 42·6 *per mille* or 3·7 *per mille* less than the figure based on the census population.

The Provincial Birth-Rate.
Annual Form No. 1.

The male birth-rate, as usual, exceeded the female birth-rate, the difference during the year under review being 2·5 *per mille*, as compared with 2·3 *per mille* in the preceding year. The number of males born to every 100 females was 111·3 *per mille* as compared with 111·7 *per mille* in the year 1927 and 112·1 *per mille* during the preceding quinquennium.

7. The birth-rate of districts varied between a maximum of 54·7 and a minimum (excluding Simla) of 38·0 *per mille*. The five districts exhibiting the highest birth-rate were Lyallpur (54·7); Amritsar (52·3); Gurdaspur (50·6); Gujranwala (50·5); and Mianwali (50·2); whilst the five districts recording the lowest birth-rates, excluding Simla, were Muzaffargarh (38·0); Dera Ghazi Khan (38·2); Kangra (38·3); Jhelum (41·2); and Gujrat (41·9).

The District Birth-rate.
Annual Form No. 1.

The birth-rate of all districts exceeded the death-rate, the excess being exceptionally great in Lyallpur (+32·2); Jhang (+27·2); Sheikhpura (+26·2); Multan (+25·8) and Gujranwala (+25·7). Comparing the birth-rate of the year 1928 with the mean figure of the preceding five years, every district in the province showed an increase in the year under review, as compared with 23 (out of 29 districts) in the preceding year.

The five districts showing the greatest increase above the quinquennial mean figure were Sheikhpura (9·6); Gujranwala and Ambala (7·0); and Amritsar and Lyallpur (6·2), whilst the smallest increase occurred, excluding Simla, in the districts of Montgomery (1·3); Gurgaon and Kangra (1·8); Jhelum (2·7); and Gujrat (2·9).

8. The birth-rate of the 45 towns with a population of 10,000 or more was 46·6 *per mille*, as compared with 43·3 *per mille* in the preceding year and a mean birth-rate of 42·2 *per mille* during the preceding five years. The birth-rate of three large cities in the year under review in the preceding year and in the previous five years was as follows :—

The Urban birth-rate.
Annual Form VI-B—Towns.

	1923-27.	1927.	1928.
Lahore	... 35·45	38·39	40·39
Amritsar	... 50·58	49·53	53·67
Multan	... 45·89	47·36	47·94

The birth-rate of all the towns (municipal and small towns), 186 in number, was 45·05 *per mille*, as compared with 42·09 *per mille* in the previous year and a mean birth-rate of 41·32 *per mille* in the preceding five years.

9. The birth-rate in rural areas was 46·45 *per mille* as compared with a mean birth-rate of 42·29 *per mille* during the preceding year and 41·45 *per mille* during the previous five years. The five districts (rural areas) showing the highest and lowest birth-rate, respectively, are the same as those mentioned in paragraph 7.

The Rural birth-rate.
Annual Form No. VI-A.

10. The provincial birth-rate, as already stated, was remarkably high; it has, in fact, never been exceeded during the past 28 years and it has only on one occasion been higher during the 48 years for which statistics are available. The rise of the birth-rate was everywhere conspicuous and the sole features calling for comment are the extremely wide variation of the district birth-rate, the relatively low birth-rate in certain districts—Muzaffargarh, Dera Ghazi Khan and Kangra—and the small increase of the birth-rate over the

quinquennial mean figure in the districts of Montgomery, Gurgaon and Kangra. The immediate cause of the high birth-rate was the exceptional salubrity of the years 1927 and 1928 and more especially the absence of malaria in epidemic form, but that this is not the sole cause is suggested by the fact that in no other province of India is the birth-rate capable of undergoing so conspicuous a rise in any circumstances whatsoever.

11. **Deaths.**—The total number of deaths registered during the year was 507,234, of which 270,285 were males and 236,949 were females. The provincial death-rate was therefore 24·7 *per mille* as compared with 27·5 *per mille* in the preceding year and a mean death-rate of 33·7 *per mille* during the previous quinquennium.

The Provincial death-rate,
Annual Form No. II.

Calculated on the estimated population the death-rate was 22·8 *per mille* or 1·9 *per mille* less than the figure based on the census population.

The death-rate of males and females in the year under review, in the preceding year, and in the previous five years was as follows :—

TABLE IV.

Sex.				1923-27.	1927.	1928.
Males	...	...	...	32·2	27·1	24·1
Females	...	...	...	35·4	27·9	25·4
Excess of the female over the male death-rate				+3·2	+0·8	+1·3

The provincial death-rate, which was 9·0 *per mille* less than the mean annual death-rate during the preceding five years, as already stated, has only once been lower during the past 60 years.

The mortality occasioned by cholera, plague and small-pox was 2,34 (0·10 *per mille*), 8,282 (0·40 *per mille*) and 8,764 (0·43 *per mille*) respectively, these three epidemic diseases thus contributing 19,080 deaths (0·93 *per mille*), as compared with 29,653 (1·45 *per mille*) during the preceding year. "Fevers" accounted for 316,235 deaths (15·41 *per mille*), but this latter figure is 2·07 *per mille* less than the figure of the preceding year and 4·76 *per mille* less than the mean annual "fever" death-rate during the preceding five years.

It is thus clear that the main cause of the extremely low death-rate in the year under review was the exceptionally low incidence of plague and "fevers" (*vide* Table II).

As regards the sexes, the female death-rate was, as usual, higher than the male death-rate, but, as shown in Table IV, the excess of the female over the male death-rate was 1·3 *per mille* as compared with 0·8 *per mille* in the preceding year. Owing, however, to the fact that males outnumber females by over two millions, the number of deaths of males to every 100 deaths of females was 114·1 as compared with 116·8 in the preceding year. It is not easy to account for the larger excess of the female death-rate in 1928 as compared with the previous year, but it may be due to the fact that the death-rate of female children between 1 and 5 years was relatively high as compared with the male death-rate; in fact, if the female death-rate of this age-group had borne the same relation to the male death-rate as in the previous year, it would have been 31·98 *per mille* instead of 33·90 *per mille*.

12. The district death-rates varied between a maximum of 33·7 and a minimum of 17·5 *per mille*. The five districts exhibiting the highest death-rates were Kangra, (33·7); Gurgaon, (30·5) Gurdaspur, (29·7);

The District death-rate,
Annual Form No. II.

Amritsar, (29·2) ; and Hoshiarpur, (28·9) ; whilst the five districts recording the lowest death-rates were Dera Ghazi Khan, (17·5) ; Muzaffargarh, (19·8) ; Jhang, (20·9) ; Sheikhpura, (21·1) ; and Multan, (21·4). All districts exhibited a death-rate much below the mean figure for the previous five years and, except in the districts of Kangra, Jhelum, Rawalpindi and Montgomery, they were also below the figure for the preceding year. The relatively high death-rates of Gurgaon, Hoshiarpur and Amritsar were due to "fevers," and in Kangra to cholera.

13. The death-rate of 186 municipal and small towns was 26·92 *per mille* as compared with 29·19 *per mille* during the preceding year and a mean figure of 36·74 *per mille* during the previous five years. The death-rate of the cities of Lahore, Amritsar and Multan was 29·15, 38·64 and 28·49 *per mille* respectively, as compared with 31·65, 37·84 and 34·80 *per mille* during the previous year and 34·94, 42·32 and 33·71 *per mille* during the previous five years. Some of the smaller towns exhibited extremely high death-rates, *viz.*, Mukerian, (56·27) ; Pakpattan, (54·45) ; Dinanagar, (52·63) ; Bahadargarh, (52·56) and Kharar, (48·89), the cause being outbreaks of plague, except at Pakpattan, where the "fever" death-rate was conspicuously high.

14. The death-rate of rural circles was 24·46 *per mille*, as compared with 27·26 *per mille* during the preceding year, and a mean death-rate of 33·69 *per mille* during the preceding five years.

The rural death-rate was below the quinquennial mean figure in all districts (excluding Simla) with the exception of Kangra (+3·70). The four districts (rural circles) showing the highest death-rate were Kangra, (33·89) ; Gurgaon, (30·90) ; Gurdaspur, (29·64) and Hoshiarpur, (29·15), the cause being cholera in the case of Kangra, and plague and "fevers" in Gurgaon, Gurdaspur and Hoshiarpur.

15. As is usual in the absence of great epidemics of malaria or plague, the urban death-rate exceeded the rural death-rate, the difference in the year under review being equal to 2·46 *per mille* of population as compared with 1·93 *per mille* in the previous year. The death-rate under the main heads of mortality in urban and rural areas in the year 1928 and in the previous year is given in Table V.

TABLE V.

Head of Mortality.	URBAN DEATH-RATE.		RURAL DEATH-RATE.		Excess or defect of urban death-rate in 1928.
	1927.	1928.	1927.	1928.	
Cholera ...	0·67	0·07	0·54	0·10	—0·03
Small-pox ..	0·67	0·59	0·46	0·41	+0·18
Plague ...	0·43	0·40	0·41	0·40	<i>Nil.</i>
"Fevers" ...	12·00	11·81	18·11	15·84	—4·03
Dysentery and diarrhœa ..	1·27	1·22	0·46	0·43	+0·79
Respiratory diseases ...	6·41	5·79	2·35	2·18	+3·61
Injuries ...	0·38	0·42	0·32	0·35	+0·07
All other causes ...	7·35	6·62	4·60	4·75	+1·87
Total ...	29·19	26·92	27·26	24·46	+2·46

From a scrutiny of the figures given in Table V it will be seen that the death-rate both of urban and rural areas underwent an appreciable reduction in the year 1928 as compared with the previous year, the decline being 2·27 *per mille* and 2·80 *per mille* in the case of urban and rural areas, respectively.

It will also be observed that, except in the case of "injuries" and "all other causes," the death-rate under all heads of mortality was smaller, both

in urban and rural areas, than the corresponding rates in the year 1927. As usual, the urban death-rate from small-pox, dysentery and diarrhoea and respiratory diseases exceeded the rural death-rate, whilst, again as usual, the rural "fever" death-rate exceeded the urban death-rate. On the other hand, the plague death-rate of towns and rural areas was identical, whilst the cholera death-rate in rural areas, owing to the outbreak of this disease in Kulu, presented the unusual feature of being higher than the urban death-rate.

16. Seasonal Incidence.—The monthly incidence of mortality in the Punjab is subject to considerable variation from year to year in accordance with the varying seasonal character of the chief epidemic diseases. Plague, cholera and small-pox were all prevalent in the second quarter of the year 1928 and May, with a death-rate of 2·32 *per mille*, was in consequence the unhealthiest month. Next in order of magnitude, come December, (2·27 *per mille*); June, (2·18 *per mille*); and April, (2·17 *per mille*); the relatively high mortality in December was due to respiratory diseases. The healthiest month of the year was September (1·83 *per mille*), which was closely followed by August (1·89 *per mille*) and July (1·91 *per mille*). The weekly incidence of cholera, small-pox and plague is shown in Charts III, IV and V. (Appendix D.)

17. Age Incidence of Mortality.—The number of children belonging to the three age groups under one year of age is not known and the actual number of deaths in these age groups can alone be given. Amongst infants not exceeding one month in age the total mortality was 71,539 (39,129 males and 32,410 females) as compared with 65,520 (35,568 males and 29,952 females) in the previous year. The mortality in this age-group was thus 6,019 (3,561 males and 2,458 females) in excess of that of the previous year. The death-rate of male children in this age-group exceeded the female-rate in all districts, but, as usual, the death-rate amongst Hindu female children in Jullundur district exceeded the male death-rate in this district.

The death-rate of Muhammadan children under 1 month of age was 3·55 *per mille* of the total census population as compared with 3·42 *per mille* in the case of Hindus.

In the case of children over one and not exceeding six months of age, the mortality was 45,700 (24,517 males and 21,183 females) as compared with 41,541 (22,310 males and 19,231 females) in the preceding year. The excess in the year under review was, therefore, 4,159 (2,207 males and 1,952 females).

The death-rate amongst Muhammadans in this age-group was 2·19 *per mille* of the census population as compared with 2·29 *per mille* in the case of Hindus.

In the case of children over six months and under twelve months of age, the total mortality was 41,987 (22,196 males and 19,791 females), as compared with 38,224 (20,569 males and 17,655 females) in the preceding year. The excess in the year 1928 was therefore 3,763 (1,687 males and 2,076 females).

The death-rate amongst Muhammadan and Hindu infants in this age-group was 1·99 *per mille* and 2·12 *per mille* of the census population respectively.

Infant Death-Rate.—In the case of infants under one year of age the total mortality was 159,226, or an increase of 13,941 as compared with the corresponding figure in the previous year.

The infant death-rate calculated on the census population of this age-group was 191·04 *per mille* as compared with 174·32 *per mille* in the previous year and a mean death-rate of 197·31 during the preceding quinquennium. The rate in the case of Muhammadans was 185·79 (197·25 males and 175·95 females), whilst the corresponding rate in the case of Hindus was 200·36 (210·87 males and 189·37 females).

The Infantile Mortality-Rate.—The death-rate amongst children under one year of age per 1,000 births was 167·62 (171·55 males, and 163·25 females), as compared with 167·50 (171·27 males and 163·29 females) in the previous

year, and 193·57 during the previous five years. It would thus appear that, although the total death-rate was less by 2·8 *per mille* than it was in the preceding year, the infant death-rate was considerably higher (16·72 *per mille*) and the infantile mortality-rate was slightly higher (0·12 *per mille*) than in the preceding year.

The infant death-rate is, however, calculated on the census population, which, owing largely to the high birth-rate and low death-rate in the years 1927 and 1928, was 1,767,947 less than the estimated population at the end of the year under review.

In these circumstances the infantile mortality-rate affords a more accurate index of the health of the infant population and the fact that this rate was slightly higher (0·12) than in the preceding year is mainly ascribable to the relatively high mortality amongst infants *during the first month of life* in the year under review.

It will be observed that the female infantile mortality-rate in the year under review was slightly lower (—0·04) than in the preceding year, so that the excess in the year 1928 is due to the male infantile mortality-rate in 1928 being 0·28 *per mille* in excess of the corresponding figure in the preceding year. The male death-rate during the first year of life, and more especially during the first month, is invariably higher than the female death-rate, and the fact that a small relative increase occurred in the male infantile mortality-rate in a remarkably healthy year may be partly due to the fact that relatively more males (0·2 *per mille*) were born in the year 1928 as compared with the previous year.

The data regarding the incidence of mortality amongst Muhammadan and Hindu infants show that, whilst Muhammadan infants were somewhat less likely to survive the first month of life than in the case of Hindus, the death-rate of Hindus subsequently underwent a relative increase, with the result that the Hindu death-rate in children under one year of age exceeded the corresponding rate of Muhammadans by 14·57 *per mille*.

It would thus appear that Muslim infants were slightly more delicate at birth than Hindu infants, but that at later age-periods, up to one year of age, the Hindu child was the more delicate.

In regard to sex, the infant death-rate in the case of Muhammadan males was 197·25 *per mille* and 210·87 *per mille* in the case of Hindus, the corresponding figures for females being 173·95 and 189·37 *per mille*, respectively. Male children under one year of age of both races therefore succumbed to a greater extent than females but, as between female infants, the death-rate amongst Hindus was relatively high.

The death-rate at all age periods.—The death-rate of males and female in each age-group during the year 1928 and during the preceding year is shown in Table VI.

TABLE VI.

Age-Period.	1928.		1927.		DIFFERENCE.	
	Males.	Females.	Males.	Females.	Males.	Females.
Under one year ...	202·00	179·65	184·46	163·77	+17·54	+15·88
1 and under 5 years ...	35·60	33·90	45·42	41·80	—9·82	—7·90
5 and under 10 years ...	7·99	8·72	10·97	11·29	—2·98	—2·57
10 and under 15 years ...	7·96	10·40	10·73	13·10	—2·77	—2·70
15 and under 20 years ...	11·20	14·99	15·28	18·47	—4·08	—3·48
20 and under 30 years ...	9·38	11·62	12·32	13·92	—2·94	—2·30
30 and under 40 years ...	11·76	13·66	14·88	16·39	—3·12	—2·73
40 and under 50 years ...	18·39	18·09	21·65	20·63	—3·26	—2·54
50 and under 60 years ...	27·10	27·01	30·22	29·44	—3·12	—2·43
60 and upwards ...	49·56	51·01	52·33	54·60	—2·77	—3·59

The figures given in Table VI bear witness to the unwonted salubrity of the year 1928 and the only point calling for comment is the increased rate of mortality in children, more especially males, under one year of age as compared with the previous year. An explanation of this circumstance has already been suggested and it will suffice to state that, since a great increase in the population belonging to this age-group has taken place during the past two years (owing to the exceptionally high birth-rate in 1927 and 1928), the high infant death-rate in the year under review, since it is calculated on the census population in the year 1921, must be regarded as in large measure fictitious.

18. The Death-rate by Religions and Classes.—The main features in respect of the death-rate amongst the chief classes and religions are shown in Table VII.

Annual Form No. IV.

TABLE VII.

Religion.	INFANT DEATH-RATE.		TOTAL DEATH-RATE.		
	Male.	Female.	Male.	Female.	Total.
Muhammadans	197.25	173.95	23.75	24.70	24.18
Hindus	210.87	189.37	24.58	23.41	25.40
Indian Christians	144.53	114.35	22.80	23.39	23.06

From a scrutiny of the figures given in Table VII it will be seen that both the total and the infant death-rate of Hindus was slightly higher than that of other religions and races. It will also be observed that, as usual, the infant death-rate of males of all religions was higher than the female death-rate, whilst in the case of the total death-rate, the female death-rate of all classes and religions was higher than the male death-rate. The statistical data do not permit of a comparison between the relative healthiness of the various religions and classes, but the figures given in Table VII suggest that, as a community, Hindus displayed a slightly greater susceptibility to disease than Muhammadans.

19. Births and Deaths amongst Railway Employees.—During the year under review 160 births (96 males and 64 females) and 109 deaths (69 males and 39 females) were registered at railway stations situated outside municipal limits, as compared with 66 births (46 males and 20 females) and 30 deaths (21 males and 9 females) in the preceding year. Fifty deaths were recorded under the head “all other causes”; “fevers” accounted for 34; injuries for 18; small-pox and respiratory diseases for 3 each and dysentery and diarrhoea for one death.

20. Births and Deaths amongst Europeans and Anglo-Indians.—During 1928 there were 367 births and 123 deaths among Europeans and Anglo-Indians as compared with 334 and 122 respectively in 1927. The deaths were recorded under the following heads; “all other causes,” 82; “fevers,” 14; injuries, 13; respiratory diseases 11; dysentery and diarrhoea, 2; and small-pox, 1.

21. Births and Deaths in Cantonments.—The number of births and deaths recorded amongst the non-military population of Cantonments situated in the Punjab was 4,263 births and 2,750 deaths, which represent a decrease of 225 and 79 respectively as compared with the previous year. The deaths were classified as follows:—“fevers”, 1,410; “all other causes,” 630; respiratory diseases, 523; dysentery and diarrhoea, 63; injuries, 60; small-pox, 6; plague, 6; and cholera, 2.

Annual Form No. VI—C.

22. Registration of Vital Statistics.—No substantial change took place during the year under review in respect of the registration of vital statistics and these statistics are still compiled and tabulated in the office of Civil Surgeons. It was intended to entrust this important work to District Medical Officers of Health, but it was not possible to give effect to this proposal as these officers have not yet been provided with a clerical establishment competent to cope with this work.

Several attempts have, however, been made to increase the accuracy and to enhance the usefulness of these statistics, and amongst the minor changes made during the year the following may be mentioned :—

Revised forms in respect of the registration of births and deaths in rural areas were introduced in April, 1928, the chief modification being the provision of space in the birth register for recording the name of the midwife (*dai*) attending the birth, and the insertion of cross references in the birth and death registers in respect of births and deaths of children under one year of age. With a view to promote the accuracy of the registration of vital statistics within railway premises (but outside municipal limits) a list of instructions for the use of Station Masters has been drawn up and revised forms for the registration of births and deaths have been issued. Another small reform carried out during the year was the issue of instructions in respect of the mode of recording “still-births” and “live-births”, which have been defined in the terms suggested by the Health Committee of the League of Nations. No uniform procedure previously existed in the Punjab in respect of recording still-births, but, from the end of the year 1928, still-births, as now defined, will not be taken into account in calculating the birth-rate, the death-rate or the infantile mortality rate, and revised forms have been issued in accordance with this modification in procedure.

The checking of entries in the birth and death registers is carried out by the vaccination staff and also by revenue officials. During the year under review 778,372 entries in birth registers and 459,048 entries in death registers were checked, these figures representing an increase of 18,703 as compared with the previous year, in the case of births, and a decrease of 34,160 in the case of deaths. Special importance attaches to the checking of entries in the birth registers as births are more apt to be omitted than deaths, but the decline in the scrutiny of entries in death registers is ascribed to the additional duties thrown upon vaccinators in respect of other public health measures.

The percentage of omissions detected to the total number of entries checked is shown in Table VIII.

TABLE VIII.

Staff,	BIRTHS.		DEATHS.	
	Males.	Females.	Males.	Females.
Vaccination staff	1.77	1.99	0.93	0.98
Revenue officials	1.52	1.43	1.13	1.22

The largest number of omissions was discovered in the districts of Dera Ghazi Khan (2,614) ; Mianwali (1,961) ; Gujrat, (1,779) and Shahpur, (1,611).

In rural areas, where the registration of vital statistics is enforced by executive order only, the defaulters were reported to the civil authorities, by whom they were “warned” ; but the fines inflicted on village officials (*chowkidars*) throughout the province for failure to register births and deaths amounted to Rs. 20-4-0 only.

In municipal towns and small towns, where the registration of births and deaths is compulsory, 481 persons were fined for failure to register births and deaths, and fines, aggregating Rs. 429, were inflicted by the courts.

SECTION VI.—Chief Diseases.

23. **Cholera.**—Cholera was responsible for 3,070 seizures and 2,034 deaths during the year under review, as compared with 13,557 seizures and 11,286 deaths in the previous year. The cholera death-rate was 0·10 *per mille* (0·10 males and 0·10 females) as compared with 0·55 *per mille* in the previous year and a mean cholera death-rate of 0·17 *per mille* in the preceding quinquennium.

Annual Form No. VII.

The cholera mortality during the period 1867—1928 is shown graphically in Chart III, from a scrutiny of which it will be seen that the mortality from cholera during the year under review was unusually small. The figures given in Annual Form VII, show, however, that, whilst all except three districts were infected, the brunt of the epidemic fell upon one district—Kangra—in which 1,447 deaths or nearly 71 *per cent.* of the total cholera mortality took place.

The history of cholera during the year under review is, in consequence, mainly the history of the epidemic in Kangra district, but before describing this out-break, it will be convenient to give a brief account of the history of the disease in other parts of the province.

Cholera is not known to be *permanently* endemic in any part of the Punjab—and the widespread epidemic which followed the Hardwar Fair in the previous year came to an abrupt conclusion in October 1927. No case of cholera was reported from any part of the Punjab from November 1927 until March 12th 1928, when, following the arrival from Calcutta of a party of cholera-infected pilgrims, four cases and three deaths (one indigenous) occurred at the town of Rohtak. During April and May single cases or small outbreaks (total deaths, 18), some suspected to be of indigenous origin, others to be due to importation from Hardwar, occurred in nine districts. In June and July, small outbreaks, mainly as the result of importation from Hardwar and other places in the United Provinces, occurred in the districts of Rohtak, Gurgaon, Ambala, Hoshiarpur and Montgomery. In August and September a few localized outbreaks occurred in the districts of Lahore, Amritsar, Jhelum and Muzaffargrah. In September there were only 82 deaths and early in October the disease, according to custom, completely disappeared and for a month the province was free from cholera. A fresh wave of invasion, however, occurred in November when some 700,000 pilgrims journeyed to Thanesar to attend the Sun Eclipse Fair which was held at that place on November 12th. Some of the pilgrims hailing from outside the province were “carriers” or persons in the incubation stage of the disease, and it thus came about that, in spite of rigid precautions, cholera gained entrance to the fair. Eleven imported cases were detected before the fair, 38 cases occurred during the fair and 203 cases (84 in the Punjab and 119 in the United Provinces) took place, chiefly amongst pilgrims and their relatives, after the return of the pilgrims to their homes.

The epidemic of cholera in Kangra district had a different origin, and, although the early history of this outbreak is wrapped in obscurity, it has been ascertained that the disease was introduced into Mandi State in the previous year by pilgrims returning from the Hardwar Fair and that sporadic cases continued to occur throughout the winter.

With the advent of spring, so it would appear, the disease recrudesced, and thus the origin of the Kulu epidemic is attributable to Hardwar, the *fons et origo* of nearly all cholera epidemics in the Punjab. Nothing was known of this happening at the time—the Mandi State possesses no public health organization—and the first intimation of the presence of cholera in this region was the receipt, on 31st March 1928, of a telegram that cholera had broken out amongst the employees at the Hydro-Electric Station in course of construction by the Punjab Government at Joginder Nagar in Mandi State. This outbreak, which was responsible for 36 seizures and 26 deaths during the first week of April, was followed in the middle of the month by another at Baijnath near the border of Mandi State, which gave rise to 28 seizures and 18 deaths amongst the labour force engaged on the construction of the Kangra

Valley Railway. These two outbreaks were speedily suppressed and, as the result of a personal inquiry conducted during the last week of April, it was found that, save for single cases in a few hamlets near Baijnath, Kangra district, including the Kulu Sub-Division, as well as Mandi State, were free from infection. There appeared, therefore, to be no immediate cause for alarm and little for anxiety; more especially was this so, since the remote tract constituting the Kulu sub-division had never previously, within living memory, been infected with cholera and only once in the past 61 years had it experienced an epidemic. The subsequent course of events unfortunately failed to bear out this forecast; for, either as the result of the spread of infection by healthy "carriers" from Mandi State, or as the result of the recrudescence of a latent infection, cholera appeared in Kulu in the first week in May. The first case occurred on the 4th May. From this date until May 17th a few sporadic cases were reported (average 2 cases *per diem*) and this state of affairs continued without material change until May 23rd, when cholera suddenly and almost simultaneously broke out in epidemic form in many places and spread with great rapidity, during the first half of June, to many villages in this mountainous tract.

The epidemic, which was mainly confined to the tahsil of Kulu, attained its maximum intensity in the third week of June, but at the same time infection spread to Outer Seraj, which is only separated from the Simla Hill States by the Sutlej river. The epidemic in Kulu came to an end in August, but the havoc and distress occasioned amongst a primitive people by this unaccustomed pestilence is only feebly represented by the 1,746 seizures and 1,164 deaths to which it gave rise.

Seasonal Periodicity.—The seasonal incidence of cholera in the year under review exhibited two unusual features. In the first place the disease attained maximum prevalence in the month of June (*vide* Appendix D, Chart III) instead of the month of August; and secondly, after a month of complete freedom, a fresh wave occurred in the months of November and December.

The abnormally early appearance of cholera in epidemic form is thought to be associated with the fact that cholera, like other diseases, exhibits a change of season with change of latitude and altitude. In the year under review the main epidemic area was located in the Sub-Himalayan region and it would be expected that the disease would exhibit the seasonal features characteristic of epidemics in this region. The occurrence of small wave in November and December, after the complete subsidence of the disease early in October, is a feature almost without precedent, and it is clearly due to the arrival of a fresh wave of infection consequent upon the great assemblage of pilgrims at Thanesar. And the fact that this outbreak was small is probably due to the climatic conditions in the Punjab during the winter being relatively unfavourable to the transmission to infection.

Preventive Measures.—On the first appearance of cholera in the province, steps were taken to ensure that the reporting agency in all districts was alive to its duties, that a fresh stock of cholera vaccine was obtained and that all cholera depôts were supplied with medicines and disinfectants.

The value of these measures, when implemented by energetic action, soon became apparent. At Joginder Nagar, where the Public Health Department had insisted upon a complete sanitary organisation being provided, the outbreak was quickly suppressed. Similarly, the epidemic amongst the labour force on the Kangra Valley Railway, thanks to the precautionary measures, which the Railway authorities had been induced to adopt, was soon quelled.

The same success did not unfortunately attend the attempt to combat the outbreak in Kulu. It must be admitted that in this place the difficulties were exceptionally great; for, even if the presence of cholera in Mandi State had been known in time, it would not have been possible, in the light of existing scientific knowledge, to have prevented the spread of infection into Kulu; it must also be admitted that there was small reason, before the event, to anticipate the occurrence, in this hitherto cholera-immune tract, of a sudden and wide-spread epidemic.

These circumstances, combined with the fact that the exiguous anti-epidemic staff was fully employed elsewhere in combating plague, account for the fact that no public health staff was sent to Kulu before infection was known to be present in this sub-division, whilst the delay and uncertainty attending the early recognition of an unfamiliar disease in an area, which, on account of its healthiness, contained only one hospital, explains in some measure the delay in realizing that the disease had gained a foot-hold. As soon as this fact became known, medical assistance was promptly despatched, but it was inevitable that the measures taken to deal with a few sporadic cases should have proved wholly inadequate in the face of the explosive epidemic which occurred on May 23rd 1928.

The occurrence of this event did not become known at headquarters until June 5th, on which date one Assistant Director, 1 District Medical Officer of Health and subordinate staff were ordered to Kulu, and arrangements were made for the supply, at the cost of Government, of a large stock of vaccine, medicines and disinfectants. As the situation developed, the staff was further increased and 2 Assistant Surgeons and 19 Sub-Assistant Surgeons and 5 Sanitary Inspectors were eventually employed in Kulu tahsil alone, whilst, as the disease spread to the east, another unit in charge of an Assistant Director of Public Health and a District Medical Officer of Health and subordinate staff was despatched to Outer Seraj.

The measures employed comprised the disinfection of water supplies, the diversion of water courses ("*kuhls*"), the restriction of the movements of the population, the closure of courts, the establishment of medical inspection posts on all roads leading out of Kulu, the temporary suspension of the fruit traffic, mass inoculation—over 70,000 inoculations were performed—and the treatment of the sick by the administration of the essential oils mixture, kaolin and potassium permanganate pills.

It is difficult to appraise with precision the part played by these measures, which, although late in coming into full operation, were carried out with the utmost vigour, in bringing the epidemic to an end, but it is certain that the absolute control, which the complete stoppage of traffic across the Sutlej river ensured, was the means of preventing the spread of the disease into the Simla Hill States.

After the conclusion of the epidemic, the circumstances attending this outbreak formed the subject of an inquiry, as the result of which it became clear that the medical and public health requirements of Kulu must be more fully provided for than in the past. One of the most regrettable features of the outbreak, and one which gravely handicapped all subsequent efforts to combat it, was the delay in reporting its occurrence. It is now clear that this defect was partly due to the fact that the District Medical Officer of Health was without competent clerical assistance, as the result of which vital information was withheld and important telegrams were mutilated or mislaid. The need for supplying District Medical Officers of Health with competent clerks has been repeatedly impressed upon Government during the past 3 years, but the matter, it is understood, is still under consideration. The Directorate of Public Health, envisaging such a situation as occurred in Kulu in the summer of 1928, has long urged that the policy whereby the entertainment of staff to combat epidemics is only permissible after an epidemic has broken out is unsound in theory and extravagant and ineffective in practice. This view was accepted in November 1927 when sanction was given to the formation of a number of fully staffed and equipped mobile units ready to move at a moment's notice to any threatened area, but unfortunately the sanction was cancelled so far as the financial year 1928-29 was concerned, and it thus came about that when an emergency suddenly arose on the 23rd of May, 1928, the Public Health Department found itself under-staffed and ill-prepared to deal promptly with an exceptionally difficult situation. Finally, it must be emphasized that, in the present state of scientific knowledge the control of cholera even under the most favourable conditions, presents great and sometimes insuperable difficulties; but this fact renders it all more necessary that the technical and administrative measures deemed essential for this purpose should be adopted.

The elaborate measures taken to prevent the outbreak of cholera at Thanesar on the occasion of the Sun Eclipse Fair will not be referred to in detail since they were fully described in a separate report, which has already been published and circulated. It will suffice therefore to state, although no serious outbreak of cholera occurred at the fair, that the experience gained at Thanesar clearly proved that, even under the most favourable conditions, the establishment of medical inspection posts, combined with the provision of a pure water-supply and the exercise of rigid control over sanitation, is not capable of eliminating completely the danger of the outbreak of cholera at large fairs, or of preventing, if the season be favourable, the widespread dissemination of infection by the returning pilgrims.

24. **Small-pox.**—The recorded mortality from small-pox during the year under report was 8,764 (0·43 *per mille*), as compared with 9,920 deaths (0·48 *per mille*) during the previous year and a mean death rate of 0·40 *per annum* during the preceding quinquennium.

Annual Form No. VIII.

The disease prevailed throughout the year, but, as usual, it attained its maximum prevalence during the months of May and June. The diagram attached to Chart IV displays the conspicuous decline of small-pox during the months of August, September and October and a smaller drop in March, which latter feature is unusual and may possibly be associated with the abnormal weather during the first week of the month. Every district of the province was infected, the districts in which the death-rate was above the provincial mean figures being, with two exceptions, the same as last year, *viz.*, Gujranwala, (1·16); Hoshiarpur, (1·03); Gujrat, (0·93); Lahore, (0·94); Sheikhupura, (0·80); Hissar, (0·71); Sialkot, (0·63); Montgomery, (0·61); Lyallpur, (0·56); Shahpur, (0·55); and Rohtak, (0·52).

The lowest death-rate was recorded in Gurgaon, (0·02); Mianwali, (0·03); Muzaffargarh, (0·06); Karnal, (0·07) and Ambala, (0·08). In regard to age distribution 29 *per cent.* of total deaths occurred amongst children under one year of age, as compared with 26 *per cent.* in the preceding year; whilst, in the case of children over one and under 10 years of age, the percentage was 48 *per cent.* as compared with 50 *per cent.* in the year 1927. The rise, as compared with the previous year, in the percentage of deaths amongst infants, in spite of smaller total small-pox death-rate, is probably ascribable to the change in the age-composition of the population occasioned by the extremely high birth-rate during the past two years.

As regards sex, the female death-rate, as usual, slightly exceeded (0·05 *per mille*) the male death-rate—a circumstance which may well be due to the fact that the re-vaccination of adult females is less complete than in the case of males.

The disease was, as usual, relatively more frequent in urban than in rural areas, the death-rate being 0·59 *per mille* in towns and 0·41 *per mille* in rural circles, as compared with 0·67 *per mille* and 0·46 *per mille* respectively in the previous year. The higher death-rate in towns may partly be due to more complete registration, but it is probable that the congestion prevailing in urban areas is responsible for the greater exposure to infection of the urban population. The Vaccination Act has been adopted by almost all municipal towns and the small-pox death-rate in these towns was precisely the same as that of all municipal towns (0·59 *per mille*). As usual, the large cities were rarely free from small-pox, in Lahore, city 184 deaths occurred; in Amritsar, 115; in Gujranwala 33; in Lyallpur, 34; whilst in the smaller towns a distinct epidemic occurred in Hissar, (187 deaths); in Jhajjar, (85 deaths); Khushab, (34); Pindi Bhattian, (30); and Hafizabad, (26). As the prevention of small-pox by means of vaccination is dealt with in the report on the progress of vaccination, no reference to this subject will be made here, but as regards the isolation and treatment of small-pox patients, although it is still true that there is no hospital exclusively set apart for small-pox in the province, Simla and Lahore will, it is expected, shortly be provided with fully staffed and equipped small-pox hospitals—and it is hoped to induce other large towns to follow their example.

25. **Plague.**—For the second year in succession the toll exacted by plague was conspicuously small. The total number of recorded seizures and deaths was 14,078 and 9,922 respectively, of which 11,799 seizures and 8,282 deaths occurred in British districts and 2,279 seizures and 1,640 deaths in adjacent independent states.

Annual Form No. XII.

Statement No. 1.

The plague death-rate of British districts was 0·40 *per mille* as compared with 0·41 *per mille* in the previous year and a mean annual plague death-rate of 4·44 *per mille* during the preceding quinquennium.

The annual plague death-rate of the Punjab from the commencement of the present plague cycle in the year 1898 up to the year 1928 is shown in Chart V.

Plague recrudesced in the autumn of the year 1927 in the districts of Ambala, Gurdaspur, Hoshiarpur, Hissar, Karnal, Rohtak and Sialkot—and in January and February, 1928 the endemic area embraced these seven districts together with Lahore district. In March endemic foci appeared in the districts of Gurgaon, Jullundur, Amritsar, Gujranwala and Sheikhpura, but the remaining districts of the province remained almost completely free. It may, therefore, be said that the endemic area of plague in the plague-year 1927-1928 comprised 12 districts, as compared with 21 districts in the preceding year.

In the months of April and May, when the disease assumed epidemic form, it exhibited low diffusive power with the result that it failed to establish itself in any new district. Its low diffusibility within the endemic area was also apparent, since the total number of villages from which plague deaths were reported was 856, as compared with 1,194 in the preceding year. So far as intensity is concerned, although definite outbreaks occurred in 16 districts, it only occasioned an appreciable mortality in three, *viz.*, the districts of Ambala (2·41 *per mille*), Gurdaspur (2·27 *per mille*) and Hoshiarpur (1·66 *per mille*), all of which are located in the sub-montane tract in close proximity to the foot-hills of the Himalayas.

As regards seasonal periodicity, the recrudescence of the disease during January and February was followed in March by the emergence of the disease in epidemic form throughout the endemic area. The epidemic attained its maximum intensity in April, and thereafter declined with unusual rapidity. In May, June and July the total plague mortality was 1,541, 187 and 6 respectively, whilst in August, for the first time for many years, not a single death from plague was recorded. In the autumn the disease recrudesced in six districts, as compared with nine in the previous year, the more important, being Gurdaspur and Ambala which were responsible for 99 out of 119 plague deaths that occurred in the province during the last four months of the year. The weekly incidence of seizures and deaths is shown in the diagram attached to Chart V—which displays one feature which is unusual, if not unique, in the history of plague in the Punjab. The incidence of plague normally increases during the first 14 weeks of the year in a regular step-like manner, the height of the step varying from year to year in accordance with the intensity of the ensuing epidemic. In the year 1928 this regular progression underwent an unwonted check during the last three weeks of March and it is difficult to avoid the conclusion that this circumstance is directly due to the extremely low atmospheric humidity associated with the phenomenal dust storms, which prevailed from the 4—7th March and which, as already mentioned, shrivelled the young wheat and seriously damaged the spring harvest. The diagram also depicts the unusually early and rapid decline of plague in May, which again is correlated with early onset of the hot weather and the rapid decline of atmospheric humidity.

The main epidemiological features of the year were therefore in the first place, the progressive shrinkage of the endemic area combined with a tendency of the disease to persist in the relatively humid districts in the foot-hills of the Himalayas; secondly, the low diffusibility and the low intensity of the epidemic; and, finally, its early and complete decline in June, and the restricted recrudescence of the disease in the autumn.

The disease exhibited the character of bubonic plague almost entirely, the number of cases of pneumonic plague, perhaps associated with the usually mild winter, being relatively and absolutely small.

Sex incidence.—The male death-rate (0·34 *per mille*) was, as usual, lower than the female death-rate (0·48 *per mille*). This feature is regarded, for reasons given elsewhere, as being due to the greater exposure to infection of females owing to their more domesticated habits.

Towns and Rural Areas.—The urban plague death-rate usually exceeds the rural death-rate in mild plague years, but in the year under review the death-rate of both areas was 0·40 *per mille*.

Preventive Measures.—Anti-plague measures were conducted on standard lines. During the plague “off-season”, which commences in August, an attempt was made by intensive rat destruction, repeated monthly, to stamp out infection in the potential endemic foci, which were considered to embrace (1) all villages in which plague or rat mortality occurred after June 1st, (2) all villages within a radius of five miles of these endemic foci, and (3) all large towns, especially important grain markets, with a bad plague history. The only new feature in respect of rat destruction was the employment, in addition to the usual methods, of hydrocyanic gas, and although the method has not yet come universally into use, the experience gained during the year suggested that, provided ordinary care is exercised, it constitutes a safe as well as an effective method of destroying rats in Punjab villages. After the outbreak of plague attention was concentrated upon the disinfection and fumigation of infected houses, the early evacuation of severely infected villages and the inoculation of “contacts”. The total number of inoculations performed (in infected areas only) was 188,577 as compared with 138,790 during the previous year. Owing to the mild nature of the epidemic, the anti-epidemic staff, which from April 1st, 1928 was reduced to ten Sub-Assistant Surgeons and thirteen Sanitary Inspectors, was able to carry out the above programme in its entirety and at the same time to conduct an extensive propaganda campaign on health subjects.

26. **Fevers.**—Under the generic head of “fevers” 316,235 deaths were recorded during the year under review, as compared with 358,679 in the previous year and a mean “fever” mortality of 413,839 during the preceding five years. The “fever” death-rate was 15·41 *per mille* (14·91 males and 16·02 females), as compared with 17·48 *per mille* in the year 1927 and a mean death-rate of 20·17 *per mille* during the period 1923-1927.

The annual “fever” death-rate during the period 1867-1928 is shown in Chart I, from a scrutiny of which it will be seen that since the year 1897 the “fever” death-rate has been lower than the figure recorded in the year under review on four occasions only, *viz.*, the years 1911, 1912, 1915 and 1922.

A multiplicity of diseases, not necessarily associated with high temperature, are recorded under the head of “fever”, but the “fever” statistics enable the intensity of autumnal malaria to be measured with some degree of precision. The “fever” deaths in October and November 1928 numbered 51,987, as compared with 57,908 in the previous year, which figure was itself 37,825 less than the mean figure of the preceding five years. It may therefore confidently be concluded that in the year under review the province was exceptionally, and, when the change in the age-composition of the population, as the result of the high birth-rate and low infant death-rate during the past three years is taken into account, even remarkably free from epidemic malaria. The general salubrity of the year is reflected in the fact that the “fever” mortality of every month, with the exception of August, was below that of the preceding year, the most conspicuous difference occurred in the month of January and February, when the “fever” deaths, largely owing to absence of epidemic influenza, were 18,047 below the corresponding figure of the previous year.

The largest number of “fever” deaths was recorded in May—and it is noteworthy that the month of September, in spite of the wide-spread floods

during the first week of the month, was the healthiest month of the year in respect of "fevers".

In all districts the "fever" death-rate was lower than in the previous year with the exception of Montgomery, Kangra, Simla, Rawalpindi and Jhelum, where the rate was 2.37, 1.45, 1.17, 1.09 and 0.97 *per mille* respectively in excess.

Twelve districts exhibited a "fever" death-rate in excess of the provincial mean figure of the year, the most conspicuous being Mianwali, (20.92); Hoshiarpur, (19.12); Montgomery, (18.39); Attock, (18.24); and Gurgaon, (18.23).

The "fever" death-rate in towns was, as usual, lower than the death-rate in rural areas, the figures being 11.81 *per mille* and 15.84 *per mille* respectively, the corresponding figures in the year 1927 being 12.00 *per mille* and 18.11 *per mille* respectively and 14.86 *per mille* and 20.77 *per mille* during the preceding quinquennium.

27. Dysentery and Diarrhoea.—Under this head of mortality 10,503 deaths were recorded as compared with 11,136 in the previous year, the death-rate being 0.51 *per mille* (0.49 males and 0.54 females) as compared with 0.4 *per mille* in the previous year and a mean death-rate of 0.54 *per mille* in the preceding five years.

The most striking feature exhibited in Annual Form No. X is the high death-rate from bowel complaints recorded in the Sub-Himalayan districts of Kangra and Rawalpindi. In the case of Kangra, some of this mortality may be due, in the year under review, to cholera, but as this district invariably exhibits, in the absence of cholera, a high death-rate under this head, it probably represents deaths occasioned by enteric fever, dysentery and hill diarrhoea which are known to be unusually prevalent in this district.

In the case of Rawalpindi, no case of cholera occurred in the district throughout the year and, as the death-rate from dysentery and diarrhoea (3.10 *per mille*) constitutes a considerable increase over the mean figure for the previous year (1.73 *per mille*) further investigation is necessary before any explanation can be offered of this recent change in the pathology of the district.

The urban death-rate exceeded, as usual, the rural death-rate, the rates being 1.23 *per mille* and 0.43 *per mille* respectively, as compared with 1.27 *per mille* and 0.46 *per mille* in the previous year. The seven large towns exhibiting the highest death-rate were Multan, (2.71 *per mille*); Lahore, (2.33 *per mille*); Ludhiana, (1.99 *per mille*); Jullundur, (1.86 *per mille*); Dera Ghazi Khan, (1.83 *per mille*); Jhang Maghiana, (1.66 *per mille*); and Ferozepore, (1.55 *per mille*).

The urban death-rate from bowel complaints, which in the main represents deaths from dysentery and enteric fever, was thus, as usual, approximately three times the rural death-rate. The cause, as remarked in previous reports, is largely ascribable to bad conservancy, which, in turn, is the reflection of the apathy and indifference exhibited by Municipal Committees towards their essential duties as guardians of the public health and of their unwillingness or inability to profit by the expert advice tendered to them.

28. Respiratory Diseases.—Diseases of the respiratory system accounted for 52,639 deaths as compared with 56,915 deaths in the previous year. The death-rate was 2.57 *per mille* (2.59 *per mille* males and 2.53 *per mille* females) as compared with 2.77 *per mille* in the previous year and a mean death-rate of 2.55 *per mille* during the preceding quinquennium. The seasonal incidence was normal, the highest death-rate occurring, as usual, in winter. The greatest mortality was recorded in January, but the mortality in February, March, and December was only slightly smaller. As regards distribution, the provincial death-rate was exceeded in 10 districts, the highest rate, as last year, being recorded in the district of Ambala (9.59 *per mille*); other districts exhibiting a conspicuously high death-rate were Kangra, (6.63 *per mille*);

Gurdaspur, (4.25 *per mille*) ; Amritsar, (4.15 *per mille*) ; Sialkot, (3.51 *per mille*) ; and Lahore, (3.48 *per mille*).

The urban death-rate was, as usual, higher than the rural death-rate, the figures being 5.79 *per mille* in urban areas and 2.18 *per mille* in rural areas, as compared with 6.41 *per mille* and 2.35 *per mille* in towns and rural areas, respectively, in the previous year. It is unfortunately not possible to determine with precision the cause of the deaths recorded under the head of respiratory diseases, but it is certain that influenza was again partly responsible for the high death-rate during the months of January, February, March and December, and it is probable that the lower death-rate during these months in the year under review, as compared with last year, was due to the milder character of influenza, which is, perhaps, associated with the fact that the winter of 1928 was less severe than that of the previous year. Influenza was specially prevalent in the sub-montane districts of Ambala, Gurdaspur and Sialkot, but the high death-rate in Kangra district, and also to some extent in other sub-montane districts, is partly ascribable to pneumonia, to which disease the inhabitants of these areas appear to exhibit relatively low resistance.

The relatively and absolutely high death-rate from respiratory diseases in cities and large towns is mainly due to the high incidence of pulmonary tuberculosis and it is to the prevalence of this disease in Lahore and Amritsar cities that the high respiratory disease death-rate of Lahore and Amritsar districts is due.

The respiratory disease death-rate of the large cities was as follows:—Amritsar, (12.34 *per mille*) ; Lahore, (9.23 *per mille*) ; Ludhiana, (9.10 *per mille*) ; Sialkot, (9.05 *per mille*) ; Multan, (8.08 *per mille*) ; Jullundur, (7.14 *per mille*) and Rawalpindi, (6.43 *per mille*).

It must be due to a curious foible of human psychology that these high figures, because they recur every year, should fail to create an impression comparable to that caused, for example, by an increase of the cholera death-rate by 0.5 *per mille*. Nevertheless, these figures, by reason of this very constancy, represent a grievous state of affairs, which, taken in conjunction with those for bowel complaints, clearly indicates the great prevalence of *preventable* disease in urban areas. It is a welcome fact that some Municipal Committees are beginning, as the result of much persuasion, to realize their responsibilities in this matter, and that, in consequence, a demand is making itself felt for the erection, at great expense, of more hospitals, more sanatoria and also, alas, of more Ayurvedic and Yunani dispensaries. This stirring of the waters above the foul pools of disease is all to the good, but Municipal Committees are unable or unwilling to perceive or, at any rate, to act upon the view that the correct solution of the problem is to attack the evil at its source and to remove the insanitary conditions which are mainly responsible for the fact that towns constitute a fertile breeding ground of disease. A Municipal Committee that fails to provide itself with a drainage system, that omits to keep its existing drains in order, that insists upon adopting a deplorably defective system of conservancy, that permits encroachments on public thoroughfares (to the exclusion of life-giving light and air), that passes, in direct defiance of the advice of its Medical Officer of Health, every building plan placed before it, that refuses to enforce the Municipal Act or its own bye-laws, and that approaches every public health problem from the point of view of personal or party considerations, is creating and perpetuating conditions under which any appreciable improvement in the public health is well-nigh impossible. And this is what almost every municipal committee, with the exception of Simla, is doing.

29. Injuries.—Under this head 7,306 deaths (0.36 *per mille*) were registered as compared with 6,776 (0.33 *per mille*) in the previous year and an average rate of 0.32 *per mille* during the previous five years.

The deaths were classified as follows:—Suicide, 253, (142 males and 111 females) ; wounds, 815 (657 males, 158 females) ; accidents, 5,275, (3,033 males, 2,242 females) ; rabies, 112 (86 males, 26 females) ; snakebite, 697 ; and injuries inflicted by wild beasts, 154. The figures, except in the case of

accidents, show little variation from year to year, but the steady rise in the number of fatal accidents, which it was suggested in last year's report was probably due to the increased use of motor cars was again manifest, the excess, as compared with the previous year, being 427 (176 males, 251 females).

The number of deaths ascribed to rabies show an increase of 4 as compared with last year, and a decrease of 33 as compared with the mean figure of the preceding 5 years. As usual the male deaths from hydrophobia greatly exceeded the female deaths. During the year 1,805 persons from the Punjab (124 Europeans and 1,681 Indians) underwent anti-rabic treatment at the Pasteur Institute, Kasauli, as compared with 1,861 persons (70 Europeans and 1,791 Indians) during the previous year. In addition 1,622 persons (131 Europeans and 1,491 Indians) underwent treatment at the King Edward Medical College, Lahore, as compared with 1,370 persons (78 Europeans and 1,292 Indians) in the previous year, and 186 persons (110 Europeans and 76 Indians) were treated at Rawalpindi. As a result of an analysis of the figures for the past 6 years it would appear that the provision of facilities for anti-rabic treatment at Lahore and Rawalpindi has approximately doubled the number of persons presenting themselves for treatment. The number of persons from the Punjab treated at the Pasteur Institute of India has decreased during the past 3 years, owing to the fact that only those severely bitten or with wounds on the face are sent to Kasauli, where they receive special treatment with etherised vaccine. The provisional figures in respect of fatalities are as follows :—amongst 124 Europeans treated at Kasauli one death and one failure occurred whilst 8 deaths and 3 failures occurred amongst 1,681 Indians. At Lahore amongst 131 Europeans and 1,491 Indians four fatalities occurred amongst Indians.

The total number of persons treated at Kasauli, Lahore and Rawalpindi during the past 4 years was 3,795 in 1925, 3,395 in 1926 ; 3,387 in 1927 ; and 3,613 during the year under review, but the number of the deaths from rabies amongst untreated individuals is still considerable and it may be hoped that the extension of facilities for undergoing anti-rabic treatment will be followed by a steady rise in the number of persons applying for treatment.

30. All other Causes.—The total number of deaths registered under this head was 101,471 (54,763 males, 46,708 females) as compared with 100,185 in the previous year. This figure represents a death-rate of 4·95 *per mille* as compared with 4·88 *per mille* in the previous year and 5·08 *per mille* in the preceding quinquennium.

Annual Form No. VI A and B.

SECTION IX.—Public Health Works.

31. The sanitary works carried out during the year are enumerated in the report of the Superintending Engineer, Public Health Circle which is reproduced in Appendix A. It will be seen that the Sanitary Engineering department had under construction during the year 29 sanitary works on behalf of Government (provincial works), and 24 projects on behalf of Local Bodies (contribution works). In addition, 10 preliminary projects, estimated to cost Rs. 14,47,535 and 57 detailed projects (34 provincial works and 23 contribution works), estimated to cost Rs. 48,25,581, were prepared by Executive Engineers of the Public Health Divisions, whilst preliminary or detailed projects relating to 9 major works (provincial) and 27 major works (contribution), at a total estimated cost of Rs. 42,12,221, were prepared under the supervision of the Superintending Engineer, Public Health Circle.

In addition to this programme of essentially sanitary works, a number of engineering works designed to prevent inundation from rivers by the erection of protective embankments and to remove flood-water by the construction of land drains were carried out during the year under the supervision of the Superintending Engineer, Rural Sanitary Circle, whilst the intensive efforts to reduce waterlogging in irrigated tracts were continued and extended by the Irrigation Department working, in this matter, in close conjunction with the Waterlogging Board.

The advisory body presiding over sanitary works (contribution) conducted in towns is the Urban Sanitary Board, a report of whose activities is given in Appendix B, whilst the Rural Sanitary Board and the recently created Waterlogging Board fulfils similar functions in respect of land drainage and waterlogging, respectively.

32. Sanitary works of public utility carried out by private individuals at their own expense were as follows :—

Ambala Division.—Rohtak District.—A dharamsala and a well at a cost of Rs. 3,200 by Kurarya and Manga Ram, son of Gulzari, mahajan, of Hasangarh. A well at a cost of Rs. 1,400 by Mussammat Mari, widow of Budha Jat, of Nilothe. A dharamsala and a well at a cost of Rs. 1,200 by Ram Saran, son of Hem Raj, mahajan, of Jasiah. A well at a cost of Rs. 2,500 by Subedar Molar, son of Amin Chand, Jat, of Sunari Kalan. A dharamsala at a cost of Rs. 500 by Mansa Ram, and Bholu, son of Ramji Lal, mahajan, of Jhajjar. A dharamsala, well and a pond at a cost of Rs. 700 by Pandit Lajje Ram, son of Ram Kala. A dharamsala and a well at a cost of Rs. 300 by Dip Chand, son of Pirbhu Bohra, Kakroi. A dharamsala at a cost of Rs. 400 by Net Ram, son of Hargobind, goldsmith. A well at a cost of Rs. 200 by Chhatar, son of Jamna, Jat, of Thana Khurd.

Gurgaon District.—A dharamsala and *paraou* at Swamika at a cost of Rs. 3,000 by Lala Chhitar, son of Udmi, mahajan, of Hathin, Tahsil Nuh. A pump for drinking water at Punahana at a cost of Rs. 195 by L. Ram Dayal, son of Sita, mahajan, of Punahana. Twenty-two acres of land, worth Rs. 3,300, one well worth Rs. 1,200 and Rs. 1,000 in cash given to the District Board, Gurgaon by Rao Chhaju Ram of Dharuhera for starting an agricultural farm. A *chopal* at Dudola at a cost of Rs. 700 by Chaudhri Ganga Lal, zaildar, of Dudola.

Jullundur Division.—Kangra District.—A pucca *naun* at a cost of Rs. 800 by Pandit Shiv Saran, son of Gulzari, of Katrah Tappa Mehta, tahsil Hamirpur. A pucca *baoli* at a cost of Rs. 400 by Mussammat Rupan, widow of Attro Singh, Rathi, of Punjal, tahsil Palampur. A pucca *baoli* at a cost of Rs. 400 by Havildar Hoshnak, son of Devi Singh, Rajput of Jona, tahsil Palampur.

Jullundur District.—A well near Mahal Gehla at a cost of Rs. 400 by Dehru and Nawab, Jats, of Khamachar. A well near Langeri at a cost of Rs. 400 by Mali, son of Nathu, Jat, of village Sarhal Qazian. A well inside the hospital at a cost of Rs. 500 by Sardar Sahib Amar Singh, retired Revenue Officer, Garh Padhana. A well in village Khanpur Dhadda at a cost of Rs. 340 by Kishan Devi, widow of Nathu, brahman.

Lahore Division.—Lahore District.—A well for drinking purposes at Ghanokhar, tahsil Lahore, at a cost of Rs. 500 each by Mussammat Dharmo, mother of Fauja Singh, and Mussammat Rajan, widow of Waryam Singh, *alias* Roda Singh. A well for drinking purposes at Jahman, tahsil Lahore at a cost of Rs. 500 by Sber Singh, son of Ala Singh. A well for drinking purposes at Ghanieke, tahsil Lahore, at a cost of Rs. 500 by Chanda Singh, son of Harnam Singh.

Gurdaspur District.—An eye-ward for the civil dispensary, Batala, at a cost of Rs. 3,000 by Lala Sham Lal, son of Rai Sahib Lala Nihal Chand of Batala.

Gujranwala District.—A well and *kutia* at Dharang at a cost of Rs. 400 by Indar Das, *chela* of Basant Das Udasi, Sadhu, of Dharang. A pucca well at Sadogoraya at a cost of Rs. 300 by Tulsi Ram of Raja Sansi, Amritsar district.

Rawalpindi Division.—Jhelum District.—Three wells at Bhaun at a cost of Rs. 13,000 by Rai Bahadur Sardar Jai Singh, Honorary Magistrate, of Bhaun. A well in his village at a cost of Rs. 1,200 by Ghulam Mehdi Khan of Dhok Murid, Dakhli Haraj, tahsil Chakwal. Rs. 100 for digging earth from a pond near Jalalpur by Lal Chand, son of Hari Chand of Jalalpur.

A well on Chakwal-Bhudial Road at a cost of Rs. 300 by Bura Mal, patwari of Dhudial.

Mianwali District.—A musafarkhana and a well at Kallurkot at a cost of Rs. 7,000 by Mahant Mahesh Das. A musafarkhana and a well at Mianwali at a cost of Rs. 16,000 by Lala Bodh Raj, son of Seth Tulla Shah of Isa Khel. A well at Sodhri, Isa Khel tahsil, at a cost of Rs. 700 by Khawaja Nur, of Kammar Mashani.

Multan Division.—Muzaffargarh District.—A well at Kinjhar at a cost of Rs. 500 by Pandit Mool Chand of Kinjhar. A well at Basira at a cost of Rs. 500 by Chaudhri Amri Chand of Busira.

Dera Ghazi Khan District.—A well at Basti Talpur at a cost of Rs. 4,500 by Shahru Khan. A well at Mauza Meh at a cost of Rs. 700 by Mitha Khan. A well at Mauza Shah Ali Behar at a cost of Rs. 2,100 by Haji Ghulam Muhammad Khan.

33. **Urban Sanitation.**—One new municipality was created during the year—Jandiala, which was previously a Notified Area—making 106 Municipal Towns in all, whilst the number of Small Towns—109 in number—remained the same.

The aggregate income of the 106 Municipal Committees, excluding the opening balance of Rs. 30,74,429 and Rs. 9,89,291 under the head of extraordinary receipts and debts, amounted to Rs. 1,35,86,192 as compared with Rs. 1,40,33,982 in the previous year. The expenditure incurred on public health measures amounted to Rs. 41,61,734, as compared with Rs. 43,31,809 in the year 1927. A small decline therefore occurred in revenue and in expenditure on public health measures, the percentage of the latter to income being 30·6 as compared with 30·8 in the previous year.

In the case of the 109 "small towns," the income amounted to Rs. 12,80,971 and the expenditure on sanitation to Rs. 1,93,977 or 15·1 *per cent.* of their income.

The expenditure in municipal towns in respect of public health measures was mainly under the heads of—

	Rs.
"Water-supply "	... 12,85,947
"Conservancy "	... 17,84,496
"Drainage "	... 6,35,965
"Establishment "	... 2,12,432
Vaccination	... 39,878
Anti-plague measures	... 87,107
Markets and slaughter houses	... 41,135
Registration of births and deaths	... 13,531
Burial and burning of paupers	... 13,814
"Other sanitary requirements "	... 47,429

The main cause of the relatively large proportion of the income spent upon public health measures in municipal towns, as compared with small towns, is the cost of maintaining piped water supplies and the relatively high cost incurred under the head of conservancy. Unfortunately the result of this expenditure was by no means commensurate with its cost and it would seem that the time has arrived when the administrative and executive functions of local bodies in the sphere of public health should be reviewed and revised.

In the case of water supply schemes it is proper that the revenue received from the sale of water should bear some relation to the cost incurred upon supplying water to the public, but, as will be seen by a reference to the statistics given in Appendix A, the total receipts from the sale of water exceeded the annual running charges in 8 out of 21 towns only, and that in no town does the credit balance permit of adequate provision being made for extensions and repairs, interest on capital and sinking fund for the redemption of loan. In the case of Rawalpindi, the maintenance charges are Rs. 10,000 in excess of the receipts, whilst at Dera Ghazi Khan, where the revenue received from the sale of water (provided entirely at the cost of Government) was Rs. 1,125, the maintenance charges were Rs. 11,932. The levy of a water-tax is, however, intensely unpopular and in Simla alone is an adequate and equitably distributed water-rate enforced. This subject, and the cognate subject of the metering of private house connexions, has for some years engaged the earnest consideration of the Urban Sanitary Board and one of the most important measures taken by that body during the year was the preparation of revised model water-supply bye-laws. These bye-laws have been approved by Government who has issued orders that in future the Board may only give grants-in-aid to municipalities for water-supply schemes provided the local body agrees to adopt these bye-laws, which provide, *inter alia*, for the institution of a water-tax and a water-rate.

One of the most unsatisfactory features of municipal administration is the defective maintenance of sanitary works—water supply and drainage schemes—the initial cost of which was largely met out of provincial revenues. Several instances came to notice during the year of the complete

ruin in the course of a few years of costly plants as the result of the deplorable neglect, if not criminal negligence, of the local body concerned.

Sanitary inspections also showed that the conservancy arrangements are almost everywhere, owing to lax administration, gravely defective, and it is clear that the financial stringency, which almost everywhere exists, is not the sole cause but in large measure the result of defective administration. In many towns the sullage is given away free to zamindars or sold for a song instead of bringing in a handsome revenue. During the year under review 1,432·16 acres of land were irrigated by sullage—which represents a small increase of 12 acres—and the total income received from this source was Rs. 90,867, which represents a decrease of Rs. 3,588 as compared with last year. The total income derived from the sale of manure and street sweepings during the year was Rs. 2,49,027, about half of which was contributed by Lahore, Sialkot and Lyallpur.

There can be little doubt that, given reasonably efficient management of sewage farms, these figures could readily be trebled, and that funds would thus be forthcoming, without additional taxation, for many much-needed sanitary reforms.

34. Rural Sanitation.—The problem of rural sanitation has attracted public attention in increasing measure during the past few years, and as a result, a new organisation—the Rural Community Council—has been created which seeks to co-ordinate the activities of the so-called beneficent departments and in some measure to assume the functions of the District Board, which is the body charged with the duty of providing for the needs of the rural population. Whether this new organization, apart from its help in carrying out “uplift” propaganda, will justify its existence is a matter upon which opinion is divided and some are inclined to think that as one co-ordinating authority—the Deputy Commissioner—and one administrative body—the District Board—already exists in each district, the value of setting up an additional organisation charged with almost the same duties has yet to be demonstrated. The aggregate income of District Boards for the year 1927-28, excluding the opening balance, but including grants-in-aid received from Government, was Rs. 2,10,78,444, but over half of this sum (Rs. 1,09,77,888) represents grants-in-aid made by Government. The total expenditure was Rs. 2,20,23,814 whilst the expenditure incurred on public health measures, including vaccination, amounted to Rs. 5,62,789, as compared with Rs. 8,75,816 in the previous year.

The contribution of Government towards public health measures amounted to Rs. 1,18,155, as compared with Rs. 69,79,939 for “Education” and Rs. 11,11,747 under the head of “Medical”. The unsatisfactory state of district board finances, to which the large grant-in-aid bears eloquent testimony, and the extremely small proportion of its income (2·7 *per cent.*) devoted to public health measures, formed the text of a representation to Government, in a letter entitled “Public Health Policy”, in April, 1928, when it was suggested that District Boards should be required to devote a definite proportion of their income to this purpose, and that additional grants-in-aid should, if necessary, be given to enable the needs of the rural population to be more adequately met. The proposal is still under consideration.

SECTION X.—Administration.

35. General.—Lieutenant-Colonel C. A. Gill, I.M.S., held charge of the office of Director of Public Health throughout the year and the two technical posts of Assistant Director of Public Health, “Vaccination” and “Epidemiology” were filled during the year under review by Khan Bahadur Dr. Abdur Rahman and Major R. C. Malhotra, O.B.E., I.M.S., respectively. Dr. Rahman also acted as Professor of Hygiene, King Edward Medical College and lecturer on hygiene to the Sanitary Inspectors’ class. The post of Assistant Director of Public Health, Rawalpindi Circle, was held by Dr. A. H. Butt throughout the year except for 3 months when he was absent on leave on medical certificate. During his absence the post was filled by Dr. Rahman from August 7th to September 12th and thereafter by Rai Sahib Dr. M. J. Thakur.

The post of Assistant Director of Public Health, Ambala Circle, was filled throughout the year by Dr. A. B. Arora, M.B.E. One new post of Assistant Director was created during the year which was filled on September 22nd 1928 by the promotion of Dr. S. G. Rasul, District Medical Officer of Health, Lahore, who, under the designation of Assistant Director of Public Health, Multan Circle, was placed in charge of the districts in the Multan division. Administrative approval had been given to the creation of a second post of Assistant Director who was to have held charge of the Jullundur division, and it is hoped that this post will be filled shortly.

The scheme for placing each civil division in charge of an Assistant Director has therefore not yet come into full operation and at present only in the Multan division does the sphere of duties of the Assistant Director of the Circle precisely coincide with that of the Commissioner of the Division. On the other hand the sanctioned provincial cadre of Health Officers—37 in number, all of whom possess a diploma in public health obtained, with one exception, in England—was completed, but the vacancy caused by the promotion of Dr. Rasul was not filled until after the commencement of the year 1929.

One of the most urgent needs of the moment is perhaps the appointment of whole-time Medical Officers of Health in the large municipal towns, but although there are a large number of suitable candidates holding British diplomas in public health and tropical medicine and hygiene, the Municipal Committees of Ambala, Sargodha and Lyallpur unfortunately insisted upon selecting less qualified and less expensive candidates. Little progress was made with the scheme for placing headquarter towns of districts and other important towns, including Murree and Dalhousie, in charge of whole-time Health Officers, but the matter is engaging the attention of Government and it is hoped that some at least of the important towns and the hill stations of Murree and Dalhousie will be persuaded or, if necessary, required to employ a qualified Health Officer in the near future.

The subordinate public health staff (provincial) employed in rural areas comprises one Sanitary Inspector and one dispenser—the latter has since been “localized”—in each district, whilst a small anti-epidemic staff consisting of 10 Sub-Assistant Health Officers, 13 Sanitary Inspectors, 20 Mates and 80 coolies, is responsible for combating epidemics of all kinds throughout the province. Additional temporary staff were also engaged with the previous approval of Government, to deal with the epidemic of cholera in Kangra district.

This exiguous staff, with such additions as impecunious District Boards can afford to employ, is scarcely able to satisfy the normal claims which in steadily increasing measure are made, thanks to the advance of scientific knowledge and a healthy change of public opinion, upon their time and energies, and the occurrence of great outbreaks of disease, which constitute so prominent a feature of the epidemiology of the province, places demands upon the Public Health Department which cannot be fully or promptly met. Proposals have however been placed before Government which, if sanctioned, will permit of the employment of a larger “normal staff,” whose efforts can be supplemented, at times of emergency, by the prompt despatch of fully trained and equipped mobile medical units.

In the case of municipal towns and small towns, where the functions of the Director of Public Health are confined to suggesting rather than to directing, the great obstacle to progress is the fact that matters profoundly affecting the common weal are too often decided on grounds other than the public interest. Nevertheless, a sense of civic responsibility is beginning to assert itself—and, given a clear lead and tactful guidance, there is reason to believe that slow but steady progress will be made in the public health administration of municipal and small towns.

36. Legislation.—It is sometimes urged by municipal councillors and others that the legal sanctions pertaining to public health are defective or defi-

cient, but experience shows only too clearly that the law is not the sola embodiment of everything that is excellent in the sphere of public health and it is a commonplace that the existing laws, owing to the default of those charged with their working, are almost, so far as public health is concerned, almost a dead letter.

Nevertheless, certain useful pieces of legislation were set in train during the year under review. The Vaccination Law Amendment Act was passed by the Legislative Council during the year and it came into operation on April 30th, 1929. District Boards have now the power to make vaccination compulsory in any part of the area within their jurisdiction.

A bill to replace the Punjab Adulteration of Foods Act, which has proved difficult to work, termed the Punjab Pure Food Bill, was also drafted and it is now under the consideration of a Select Committee of the Legislative Council.

A bill to replace the Epidemic Diseases Act of 1897 and to provide an Act more suited to local needs and to modern scientific knowledge was drafted and submitted Government. It was, however, decided to refer the question of the control of epidemic diseases to the Government of India and the ultimate fate of the bill is unknown. Finally a bill is designed to provide for the registration and better training of Health Visitors, Nurses and Midwives was drafted during the year, and, as it has since been approved by the Standing Committee on public health of the Legislative Council, it will, it is hoped, in due course be considered by the Legislature.

37. Epidemiological Bureau.—The Bureau is still accommodated, by the courtesy of the Principal, in the otherwise unoccupied Hygiene Department of the King Edward Medical College, but the Principal has intimated that this arrangement cannot be permitted to continue as the Physiological Department requires additional accommodation. In these circumstances the building of the Hygiene Institute, whose erection has been delayed on account of financial stringency, has become a matter of urgency, but there is much to be said for the view that the removal of the Bureau from the Medical College will deprive the medical students of facilities, not otherwise obtainable, of receiving instruction in the science of preventive medicine.

The work performed in the Bureau during the year comprised laboratory and field work, mainly in connexion with malaria, experimental work, and work of an educational nature.

In regard to malaria, surveys were conducted, at the request of the Rural Sanitary Board, in the tract drained by the Degh Nullah and the Kasur Nullah, whilst malaria surveys were undertaken in a number of waterlogged villages in Sheikhpura district. The intensive investigation, commenced some 18 months ago, at the Chakanwali reclamation farm was continued.

The malaria forecast was, as usual, issued on September 1st, and it is satisfactory to note that the prediction made therein that epidemic malaria would be conspicuous by its absence in all districts of the province was justified by the event. A point of interest in connexion with this forecast was the fact that, on August 31st and September 1st and 2nd heavy rainfall, followed by extensive floods, occurred in the districts of Gujrat, Shahpur and Sialkot—and the question, therefore, arose as to whether this rainfall and these floods, which, if they had occurred a few weeks earlier, would almost certainly have precipitated an epidemic, should be taken into account in framing the forecast. The view adopted in the forecast was that, "owing to the prolonged drought during July and August, it is not expected that the floods would occasion an appreciable rise of 'fever' mortality in the flooded areas;" it is now possible to state that this appreciation of the situation was correct, since in no part of the flooded tract (with the exception of a few villages) did malaria assume abnormal proportions during the autumn. Other work undertaken in the Bureau comprised the analysis of the data obtained as

the result of the 29th and 30th provincial spleen census taken in June and November, respectively. The mean spleen-rate of districts, as determined in these months, is shown in Appendix D, Chart VI.

At the census in June 81,734 scholars attending 867 schools were examined, whilst 87,300 scholars belonging to 908 schools were examined at the census taken in November. The provincial spleen rate on the former occasion was 12.55 *per cent.* in June and 11.39 *per cent.* in November, the small decline in November, instead of the usual rise, being indicative of the extreme mildness of autumnal malaria during the year under review.

Other field investigations carried out during the year comprised an inquiry into the cause of a localized outbreak of disease, which was eventually proved to be typhus, in Dera Ghazi Khan district. The disease was probably transmitted by lice, but it was observed that some of the patients were bitten by ticks. Field and laboratory investigations were also undertaken with 'cyanogas' dust, with a view to prescribing a technique by means of which hydrocyanic gas could be used with safety in Indian villages as a raticide and a pulicide. It was shown that, with ordinary care, little or no danger attends the use of this method of destroying rats and rat-fleas and detailed instructions for its employment, under proper safeguards, were issued.

Experiments were also undertaken to test the efficacy and to determine the cost of using "Paris green" (copper aceto-arsenite) as a larvicide under Indian conditions. The result of this investigation went to show that, although "Paris green", if properly applied, is an effective larvicide (in the case of anopheline larvae), it must be applied (under supervision) at least once a week during the hot weather—and that, as the amount required to cover 1,000 square yards costs about Rs. 3.0, the cost of this anti-larval measure, if employed on a large scale, is considerable.

Routine work comprised the bacteriological examination of municipal water-supplies, of which 87 samples were examined during the year. The Bureau also opened a field bacteriological laboratory at Thanesar in connexion with the Sun Eclipse Fair.

Other routine work conducted in the Bureau comprised the examination of 1,785 specimens submitted by District Medical Officers of Health or bacteriological examination, whilst the statistical work in connection with the study of the influence of meteorological conditions upon certain diseases was continued. As regards work of an educational nature, a number of charts, graphs, photographs and models were prepared for exhibition in the public health section of the Demonstration Train, whilst a start was made in organizing a Hygiene Museum by preparing or purchasing exhibits portraying the main facts regarding the cause and mode of spread of the more important epidemic diseases.

In January, 1928 the Bureau was visited by Dr. Madsen, President of the Health Committee of the League of Nations in company with the members of "Health Inter-change" organized by the League of Nations, as well as by others interested in the public health problems of India, for all of whom special arrangements were made to demonstrate the work conducted in the Bureau and to explain its bearing upon the public health problems of the Punjab.

38. Public Health Equipment Dépôt.—The Public Health Equipment Dépôt at Jullundur continued to function with efficiency and success. The value of the stores in hand on June 1st, 1928 was Rs. 12,701-7-8 and, as articles purchased during the year cost Rs. 63,925-6-5, stores to the value of Rs. 76,626-14-1 were available for issue.

The cost price of the articles sold during the year amounted to Rs. 54,729-1-4, and their sale-price, after adding dépôt charges, amounted to Rs. 65,771-7-11. There was thus a gross profit of Rs. 11,042-6-7 during the year, whilst the annual maintenance charges amounted to Rs. 9,406-13-7, thus leaving a profit of Rs. 1,635-9-0, as compared with Rs. 8,993-3-1 in the preceding year.

The articles issued during the year included 582,436 neem and bhusa battis which are used for destroying rats, and 2,50,894 doses of anti-plague vaccine, as compared with 130,014 doses in the previous year. The outbreak of cholera in Kulu led to a sudden demand for unusually large supplies of medicines, disinfectants and equipment, which, it is satisfactory to state, were promptly and fully met.

The post of Superintendent was held throughout the year by Dr. G. C. Sahgal, District Medical Officer of Health, Jullundur, as an additional charge (without remuneration) and the efficient manner in which he and the staff of the depôt performed their duties was entirely praiseworthy.

39. Chemical Laboratory of the Public Health Chemist.—In May 1928, Mr. Brij Lal, M.Sc., A.I.C., the Public Health Chemist was sent on deputation to England to undergo further training in food chemistry and Mr. Bashir Ahmed, M.Sc., officiated for him until Mr. Brij Lal resumed charge of his post on December 16th, 1928.

The work conducted by the Public Health Chemist during the year comprised the chemical analysis of 86 samples of drinking water, 42 samples of ghee, 15 samples of atta, 4 of bread, 6 of gur, sugar and sweetmeats and one of butter and one of beer.

Mr. Bashir Ahmad carried out an investigation to determine a suitable technique for sterilizing well water by means of chlorine solution. He also held charge of the chlorinating plant at the Thanesar Fair where his assistance proved invaluable. The slow rate of expansion of laboratory work, which is partly due to the fact that Punjab Adulteration of Foods Act is almost a dead letter and partly to the fact that District Medical Officers of Health have not hitherto made full use of the food laboratory, is not entirely satisfactory. Steps have, however, been taken to remedy both defects and a more workable bill has been drawn up to replace the existing Act, and the attention of District Medical Officers of Health has been called to the importance of inspecting food-stuffs and of submitting samples for analysis. The widespread use of artificial ghee has continued to engage the attention of the department and to exercise the minds of the public. That this should be so is not unnatural since of the 42 samples of ghee submitted for analysis during the year no less than 70 per cent. were found to be adulterated with vegetable fats.

It is not easy to discover a solution of this problem (which, however, is one which mainly concerns the pocket rather than health), and, although the proposal that artificial ghee should be coloured may perhaps suffice to distinguish genuine ghee from the artificial article, the employment of this method will be attended with great difficulty in the case of mixtures of the genuine and the artificial product, which are now coming into general use.

Another food-stuff, whose adulteration appears to be on the increase, is atta; samples of artificial atta were found on analysis to possess little nutritive value.

It is also a matter of concern that out of nine samples of quinine submitted by District Medical Officers of Health, only one was found to contain the declared quantity of the drug.

The adulteration of food and drugs is either becoming more prevalent or is attracting increased attention, and steps have therefore been taken to urge Municipal Committees to employ Municipal Analysts and to provide themselves with properly equipped and adequately staffed food laboratories.

40. Educational Bureau and Health Propaganda.—Health propaganda, which was carried out in steadily increasing volume during the year, now forms a permanent part of the work of the Public Health Department. District Medical Officers of Health delivered 5,547 lectures to school-children and to the general public at fairs, and much valuable work amongst women was conducted by the Principal of the Punjab Health School during the course of her tours.

As last year, the main item in the propaganda programme was the public health car attached to the Demonstration train, which starting from Lahore on October 10th, 1928, toured the province for a period of six months during the course of which it stopped for two or three days at 83 railway stations and was inspected by 800,000 persons. The public health exhibit, which was under the charge of Dr. B. L. Joshi, included sections on maternity and child welfare, village sanitation, personal hygiene, tuberculosis and epidemics. The demonstration of the exhibits was varied by cinema films on health and other topics, by health dramas, by locally organized shows and by the distribution of pamphlets on health subjects.

In order to combine theory with practice, the medical staff were provided with equipment to enable them to provide medical relief—and in this manner 681 persons received medical treatment and 415 persons were vaccinated.

Perhaps the most instructive piece of health propaganda carried out during the year took place at Phanesar during the course of the Sun & Eclipse Fair, where actual practical acquaintance with hygiene *in esse* must have made a deeper impression upon the pilgrims—some 700,000 in number—than much theoretical exposition of hygiene *in posse* would have done. The sanitary arrangements made for the comfort, convenience and safety of the pilgrims constituted, in fact, most valuable propaganda—and the only *ad hoc* effort in this direction was a large scale model of the fair showing the disposition of the sanitary arrangements.

It is coming to be realized by propagandists that the value attaching to lectures (by more or less competent lecturers) is small, and that the benefit accruing from the distribution of pamphlets (which are rarely read) is even smaller. The countryman is not slow to draw a sharp distinction between the impressions he receives from his would-be pastors and masters by way of the ear and of the eye respectively and it is clear that no form of public health propaganda is more effective than that provided by practical demonstration.

The photographer attached to the Education Bureau prepared for departmental use 406 magic lantern slides, 1,074 for the Red Cross Society and 504 for the Education Department; whilst 261 new photographs were taken and 260 enlargements and 1,473 prints were made.

The usual course of lectures in hygiene were given by officers of the Public Health Department in the Central Training College, Lahore, and in the Normal Schools throughout the province, for which purpose a revised syllabus was drawn up and issued.

Publications issued during the year included a pamphlet entitled "On the Road of Health"; health dialogues dealing with tuberculosis, malaria, small-pox, cholera and plague. A pamphlet, with abbreviated editions in the chief vernaculars, on maternity and child welfare, was also issued.

41. Maternity and Child Welfare.—Maternity and child welfare work has now taken its place as an integral part of the functions of the Public Health Department and great importance is attached to this work. During the year under review, under the guidance of Miss M. Simon, Inspectress of Infant Welfare Centres and Health Visitors, the position already gained during the past few years was consolidated and extended.

The number of Infant Welfare Centres in effective operation at the end of the year was 25, fifteen being located in towns and 10 in rural areas. Only four Centres were maintained by local bodies, the remainder being managed by voluntary committees or by charitable organizations such as the Red Cross Society.

The number of qualified Health Visitors at the end of the year under review was 34—as compared with 28 in the previous year.

Miss Simon paid 40 visits of inspection to these Centres and her inspection notes show that these visits were not only of the greatest value to the Health Visitor and to the local Committee, but they provided an opportunity of conducting much useful health and educational propaganda in schools, colleges, and purdah clubs.

The experience gained during the year served to confirm the soundness of the policy of entrusting maternity and infant welfare work to voluntary committees, with women members, rather than to Local Bodies, and it is largely on account of the absence of women members that the work conducted in four centres managed by municipal committees was less satisfactory than that of others. The organization and administration of these Centres has, within reasonable limits, been standardized—and it is clear that, with few exceptions, they were managed with efficiency and functioned with success during the year under review. The Gujrat Centre, which is managed by a branch of the Red Cross Society, was “highly commended” in the competition organized by the National Baby Week Council and it was also a “runner up” in the competition for the Lady Irwin Challenge Shield, whilst Mrs. Cuthbert King, the President of the Gujrat Branch of the Red Cross Society, was the recipient of a Kaisar-i-Hind Medal in recognition of her labours in the cause of maternity and child welfare in Gujrat district. Again, the Rewari Centre, as the result of the enthusiastic work of Dr. Chandar Bansi, the Secretary of the local committee, was awarded a “certificate of merit” for securing the third place in the Imperial Baby Week Challenge Shield competition. The work followed the usual lines and it is satisfactory to note that an increasing degree of co-operation between the Infant Welfare Centre and the local hospital—to the mutual advantage of both—was discernible. Perhaps the most important aspect of the work conducted at Infant Welfare Centres is the training and supervision of indigenous dais. At the close of the year under review 530 indigenous dais were under training as compared with 456 in the previous year. These figures, however, indicate a slow rate of progress and a scheme is under consideration by means of which certain selected Centres will, it is hoped, function as training schools for village dais deputed by District Boards. The extent to which progress has been made in this direction in some towns is indicated by the fact that during the year under review only 1.1 per cent. of the births in Simla were conducted by untrained dais.

The Punjab Health School, under the superintendentship of Miss M. Raynor, with Mrs. Dass, Arora, as Assistant Superintendent, continued to function with success. Eight students obtained the Health Visitors' diploma in May 1928, and were at once provided with posts in the Punjab as Health Visitors. The 1928-29 Session opened in October 1928, when eight students were admitted to the School, one of whom, however, on account of insufficient knowledge of English, was unable to continue her studies.

The school is unable to accommodate more than eight students and a more rapid rate of expansion of child welfare work in the province is therefore dependent upon the erection of the new Health School for which, it is hoped, funds will be provided in the next budget.

42. Inspections and Miscellaneous Duties.—The administrative duties, at headquarters made a large demand on the time of the Director of Public Health and, in consequence, the prolonged tours of inspection which were at one time the main pre-occupation of the Sanitary Commissioner during the cold weather, are now no longer possible. The need of such tours has, however, decreased as the routine sanitary inspections of the larger towns are now entrusted to Assistant Directors of Public Health of Circles, whilst District Medical Officers carry out similar duties in respect of the towns and villages in their respective districts.

A number of valuable inspection notes were submitted by Assistant Directors of Public Health, more especially by Dr. A. H. Butt, Assistant Director of Public Health, Rawalpindi Circle, and District Medical Officers of Health made sanitary inspections of 106 large towns and 4,760 small towns and villages, as compared with 100 towns and 4,548 small towns and villages in the previous year. The Director and Assistant Directors of Public Health were notified during the year an Additional Inspectors of Factories under the Indian Factories Act of 1911—and a number of factories were inspected during the year.

The inspections carried out by the Director of Public Health, in municipal towns included inspections of Simla, Dalhousie and Murree—and in connexion with the two latter, whose increasing congestion is a cause of

serious anxiety, detailed proposals for their complete sanitary reorganization were submitted to Government in September 1928. Other towns inspected during the year were Multan, Shujabad, Montgomery, Dera Ghazi Khan, Ludhiana, Ballabgarh, Palwal, Nuh, Firozpur-Jhirka, the Model Town, near Lahore, (which it was recommended should be notified as a Small Town), Muktsar and Abohar, and a number of small towns and villages in the districts of Kangra, Dera Ghazi Khan and Gurgaon. Amongst the institutions inspected during the year were Punjab Vaccine Institute, the King Edward Sanatorium, Dharm-pore and the Bakhteswar Cotton Mills at Amritsar.

The important part played by fairs in the spread of disease, especially cholera, received special attention during the year and the efforts of Assistant Directors of Public Health and of the District Medical Officers of Health concerned were rewarded by the absence of any serious outbreak of disease at any of these gatherings. The arrangements made in connexion with Sun Eclipse Fair at Thanesar, which was attended by the Director of Public Health, have been fully described in a separate report and it will therefore suffice to state that as a result of this fair, the standing orders regarding the sanitary arrangements of fairs are being recast. Finally the chapter of the Jail Manual dealing with public health, was at the request of the Inspector-General of Prisons, revised and brought up to date.

In the early part of the year the "Health Inter-Change" organised by the League of Nations visited the Punjab and, after a visit to Lahore, carried out an extensive tour in the province under the guidance of the Public Health Directorate; whilst in December 1928, the Director of Public Health attended the Research Workers Conference at Calcutta.

43. **Conclusion.**—In the foregoing pages an attempt has been made to set forth the salient features regarding the state of the public health and the chief activities of the department during the year under review.

The year was, it has been shown, an exceptionally healthy year and, in spite of some disappointments, it is possible to regard with chastened satisfaction, the advance made along the strait and narrow road to Health.

The first stage in the organization of a provincial public health service has been completed, some progress was made in adjusting the administrative machine to the requirements of scientific governance, the efficiency of the department, as well as the demands made upon it, showed unmistakable signs of steady and healthy expansion and last, but not least, the attitude of the public, from the Legislature downwards, towards public health measures was uniformly encouraging.

On the other hand, it is clear that a beginning—only a small beginning—has been made, that some sanitary problems have not yet been envisaged, let alone tackled, and that the provision made for public health measures, both centrally and locally, falls far short of requirements. Indeed, the provincial expenditure upon public health (after deducting departmental receipts) fell from Rs. 20·9 lakhs in 1926-27 to Rs. 12·8 lakhs in 1927-28.

It is difficult to create an A-1 department with the aid of a C-3 budget, but apart from the question of funds, the manner in which an ever-increasing measure of local self-government can be squared with efficiency in the sphere of public health, is a source of anxious concern. Local Government—of which public health is the very bone and marrow—has not yet passed the first instar and it will need the best efforts of statesmen to discover a *via media* which will provide necessary direction and guidance without unduly interfering with local administrative control.

It is not so much a question of *policy* as of *pace*, but so long as local bodies are amenable to the malign influence of communalism—that cancer of the body politic—so long will counsel be darkened and action paralysed in the sphere of public health.

But these and other disabilities may be only "growing pains" and it is well, in concluding this report, to take an optimistic view and to dwell upon the evidence contained in this report that, so far as circumstances permitted, a sustained effort was made to meet the pressing needs of the moment and to lay the foundations of future progress. That it is possible to make this statement is largely due to the loyal co-operation and assistance of Assistant Directors, District Medical Officers of Health and all ranks of the department.

Although, with the exception of the outbreaks of cholera in Kangra district and the Sun Eclipse Fair at Thanesar, no events making exceptional demands upon the department occurred during the year, the manner in which all, with few exceptions, responded to the exacting demands made upon them, was entirely praiseworthy.

The confidence reposed in the department depends in large measure upon the manner in which District Medical Officers of Health discharge their duties to the District Board on the one hand, whose expert advisers they are,—and, on the other, to the department to which they belong. As the result of close co-operation with the one and of loyal support rendered to the other, it may confidently be stated that the reputation of district officers—and consequently the prestige of the department—was enhanced during the year under review. It is, indeed, possible to look forward to the time, in the not distant future, when the Punjab Public Health Department, created but a few years ago, will bear comparison with many larger and older organizations. Space does not permit of the mention of all whose good work came conspicuously to notice, but amongst District Medical Officers of Health, the names of Dr. Des Raj Nayar, District Medical Officer of Health, Shahpur and Dr. Riaz Ali Shah, District Medical Officer of Health, Muzaffargarh, demand mention.

In connexion with the epidemic of cholera in Kulu, special mention must be made of Dr. J. S. P. Coutts, I.M.D., Medical Officer, Kulu Dispensary, whose indefatigable labours conducted, under trying conditions, are worthy of the highest praise and of the best traditions of the medical profession. Dr. G. R. Vohra, District Medical Officer of Health, Kangra, also distinguished himself during this outbreak, and if his prolonged and arduous efforts only met with partial success, it must be remembered that it is not always possible for public health officers to command success, although their efforts, as in this instance, may have deserved it. Mention must also be made of the energy and ability displayed by Dr. Balmokand, Medical Officer of Health, Kangra Valley Railway and Dr. Amrit Singh, Medical Officer of Health, Joginder Nagar, in combating the outbreak of cholera amongst the labour force employed on the construction of the Kangra Valley Railway and at the Mandi Hydro-Electric station, respectively. The names of several Sub-Assistant Surgeons lent by the Medical Department were brought to notice for their excellent work under difficult conditions in combating cholera in Kulu and in the Simla Hill States and their good work was duly brought to the notice of the Inspector-General of Civil Hospitals.

In connexion with the Sun Eclipse Fair, a special acknowledgment must be made of the able manner in which Dr. A. B. Arora, M.B.E., Assistant Director of Public Health, Ambala Circle, carried out his onerous and responsible duties as Chief Health Officer of the Fair, and of Dr. Harnath Singh, District Medical Officer of Health, Karnal, in whom he possessed a capable, energetic and tactful assistant, whose conspicuously good work both at Thanesar and elsewhere, has recently received recognition by the conferment of the title of Rai Sahib.

The work of Dr. G. C. Sahgal, Superintendent, Public Health Equipment Depôt, on account of the fact that it was both onerous and honorary, also calls for special mention, as does the work of Dr. Muhammad Yacob, who held charge of the Epidemiological Bureau throughout the greater part of the year, of Dr. Joshi, who was in charge of the public health section on the Demonstration train, of Dr. Samad Shah, who held charge of the Infectious Diseases Hospital at Thanesar and of Mr. Bashir Ahmed, M.Sc., Officiating Public Health Chemist.

Finally, the energy and ability displayed by Miss M. Simon and Miss M. Raynor, as Principal and Superintendent, respectively, of the Punjab Health School, not only in the performance of their duties in connexion with maternity and child welfare, but in taking an active and prominent part in the movement for promoting the social, economic and educational advance of women in the Punjab, is worthy of high commendation. Amongst non-officials, the department owes a debt of gratitude to the organizers of Infant Welfare Centres, prominent amongst whom are Mrs. Cuthbert King, Chairman of the Gujrat Branch of the Red Cross Society, who has been awarded the Kaisar-i-Hind medal in recognition of her labours, and Dr. Chandar Bansi, Assistant Surgeon, Rewari, whose energy and organizing ability as Honorary Secretary of the Rewari Health and Welfare Association demands a special word of praise, as also does the public-spirited action of Malik Ahmed Bakhsh, of Durana Lagana, Multan district, in providing an Infant Welfare Centre in his village.

SIMLA :

The 12th July 1929.

C. A. GILL, LT.-COL., I.M.S.,

Director of Public Health, Punjab.

APPENDICES.

- A. Annual Report of Sanitary Works, 1928, by Rai Bahadur Amar Nath Nanda, B.A., M.I.E. (India), Superintending Engineer, Public Health Circle.
- B. Proceedings of the Urban Sanitary Board.
- C. Statement showing the death-rate from cholera, small-pox, "fever" dysentery and diarrhoea, for the five years preceding and for the period since the introduction of drainage or water-supply or both in certain towns.
- D. CHART I.—The Birth-rate and Death-rate and "Fever" death-rate in the Punjab, 1867—1928.

CHART II.—The Infantile Mortality-rate per 1,000 births. 1880—1928.

CHART III.—The Death-rate from Cholera, 1867—1928, also weekly incidence in the year 1928.

CHART IV.—The Death-rate from Smallpox, 1867—1928, also weekly incidence in the year 1928.

CHART V.—The Death-rate from Plague, 1898—1928, also weekly incidence in the year 1928.

CHART VI.—The spleen-rate of the Punjab by Districts in 1928.

APPENDIX A.

ANNUAL REPORT ON SANITARY WORKS, 1928,

BY

RAI BAHADUR AMAR NATH NANDA, B.A., M.I.E. (INDIA),
SUPERINTENDING ENGINEER, PUBLIC HEALTH
CIRCLE, PUNJAB.

I.—ADMINISTRATION.

The designation of the Sanitary Engineer to Government, Punjab, was changed to that of the Superintending Engineer, Public Health Circle, Punjab, with effect from 8th May 1928.

The Circle was reorganised into 3 Divisions with the changed designation of Public Health Divisions, viz., Lahore Public Health Division, Ambala Public Health Division and Multan Public Health Division.

The post of the Superintending Engineer, Public Health Circle, Punjab, was held by Rai Bahadur Diwan Amar Nath Nanda, B.A., M.I.E. (India), up to 16th April 1928, when he handed over the charge of the Circle to Mr. D. A. Howell, A.M.I.C.E., prior to proceeding on 8 months' leave. Mr. Howell, remained in charge until relieved on 12th December 1928.

The number of Divisions comprised in this Circle remained the same as before, namely, three Divisions :—

- (1) *Lahore Public Health Division*.—Executive Engineer in charge Mr. D. A. Howell, A.M.I.C.E., from 1st January 1928, to 16th April 1928, and Mr. J. A. R. Bromage A.M.I.C.E., from the latter date until the end of the year.
- (2) *Ambala Public Health Division*.—Executive Engineer in charge Mr. J. A. R. Bromage, A.M.I.C.E., from 1st January 1928 to 14th November 1928. Mr. Bromage, held charge of both the Lahore and Ambala Public Health Divisions from 16th April 1928 to 14th November 1928 on which date Mr. B. F. Main, A.M.I.C.E., on first appointment to this Circle as Executive Engineer, took over the charge of the Ambala Public Health Division.
- (3) *Multan Public Health Division*.—Executive Engineer in charge Mr. G. T. Pound from 1st January 1928 to 6th March 1928 when on transfer to the Provincial Division Rawalpindi, he handed over charge to Mr. D. A. Howell, who held it up till 15th April 1928 on which date he handed over the post to Mr. D. N. Gautam, B.Sc. (Eng.) (Lond.), Bar.-at-Law, who remained in charge throughout the remainder of the year.

Mr. Devki Prasad, B.Sc. (Eng. Glasgow) was appointed as Personal Assistant to the Superintending Engineer, with effect from 26th October 1928.

Mr. T. B. Madani, Temporary Engineer, remained in charge of the preparation of the detailed projects for the Lahore Water Supply Reorganization and Sewerage Schemes, throughout the year. This charge was made into a Sub-Division called the Lahore Special Works Public Health Sub-Division.

L. Guranditta Mal, Assistant Engineer, remained in charge of the Lahore Public Health Sub-Division from 1st January 1928 to 8th March 1928, when he proceeded on sick leave handing over charge to Mr. T. B. Madani, who held that charge up to 18th April 1928 on which date Mr. J. S. Sethi, formerly Personal Assistant to the Superintending Engineer, took over charge as Sub-Divisional Officer of that Sub-Division. On return from leave on 21st August 1928 L. Guranditta Mal, was placed in charge of Sialkot Public Health Sub-Division which he held throughout the rest of the year.

L. Devi Chand, S. D. O., held charge of the Multan Public Health Sub-Division throughout the year.

L. Nand Lal, Sub-Engineer, held the charge of Ferozepore Public Health Sub-Division throughout the year.

Mr. Devi Chand Khanna, Apprentice Engineer, from Rorkee remained attached to the Lahore Public Health Sub-Division throughout the year.

Miscellaneous Works.—176 visits to Municipal Towns, Notified Areas and Small Towns were paid by the Superintending Engineer and his staff in connection with public health schemes during the year.

Boring Works.—19 borings were made during the year in connection with water supply schemes, most of which were carried out with Government boring plant. The work in each case was carried out expeditiously and economically.

The average number of public health works under construction during each month of the year 1928, was 21, whilst 22 new projects were commenced during the year and 21 were completed.

II—PUBLIC HEALTH WORKS UNDER CONSTRUCTION.

Government works are dealt with first :—

1. *Water Supply and Drainage for the proposed Police Hospital, Police Lines, Lahore.* (Rs. 27,467).—The tube well has been sunk and completed in all respects. The pumping chamber has been constructed and the pumping plant is expected to arrive early in 1929. The remaining portion of the work will be put in hand when the building operations are sufficiently advanced.

2. *Water Supply and Drainage to additional quarters, Central Jail, Lahore.* (Rs. 13,665).—The work has been completed.

3. *Water Supply and Drainage at Sub-Jail, Kasur.* (Rs. 33,268).—The tube well has been sunk, the pumping chamber and the overhead reservoir are in process of construction and most of the pipe connections have been laid. The drainage system is also being constructed.

4. *Sewerage Scheme for the Female Section of Mental Hospital, Lahore.* (Rs. 42,271).—This project has been completed. The pumps are working satisfactorily and the whole installation is in good working order.

5. *Water Supply Mental Hospital, Lahore.* (Rs. 17,918).—This work has been completed and the new tube-well is in operation.

6. *Drainage arrangements at the New Hostel attached to King Edward Medical College, Lahore.* (Rs. 11,004).—This work has been completed and the drainage system is working satisfactorily.

7. *Sanitary Installation, Dental Hospital, Lahore.* (Rs. 12,670).—The work is well advanced and it will shortly be completed.

8. *Laboratory, Dental Hospital, Lahore.* Rs. 10,588.—The work is in hand and it will shortly be completed.

9. *Water Supply, Laboratory and Sanitary fittings for main Block and Anatomical Block, Medical School, Amritsar.* (Rs. 35,476).—The estimate has been sanctioned and the work of construction will shortly be commenced.

10. *Additions and Alterations to the Water Supply of King Edward Medical College Mayo Hospital, Lahore.* (Rs. 71,328).—The main scheme has been completed and the construction of a stand-by tube-well which has been sanctioned out of savings in the estimate has also been taken in hand.

11. *Independent Water Supply for Gazetted Officers' Residence Estate, Lahore.* (Rs. 30,793).—The work has been completed and all the bungalows are now supplied from the tube-well. Meters have been installed in every bungalow and a continuous supply is given.

12. *Sewerage at Indian Clerks' Quarters, Lahore.* (Rs. 2,70,731).—Underground sewers are being laid and this work is nearly complete, the internal drainage system is in hand and progress keeps pace with the construction of the quarters. The dhobi ghat, one set of latrines, and 60 per cent. of the pail depôts have been completed.

The construction of the sewage pumping station and the main carrier will be taken in hand as soon as the land is acquired.

13. *Water Supply for Indian Clerks' Quarters, Lahore.* (Rs. 1,10,343).—Both the tube-wells have been satisfactorily sunk, the chamber for one has been completed and that for the other and the reservoir is nearing completion. One set of the pumping plant has arrived and the other is under order.

The distribution system has been completed and house connections have been completed in all houses sufficiently advanced to admit of these connections.

14. *Water-Supply for Government School of Engineering, Rasul.* (Rs. 12,800).—The Water-Supply of this institution (derived from a tube-well) was provided and maintained by this Department from June 1928 and no trouble has been experienced.

15. *Tube-Well for Hydraulic Research Laboratory, Lahore.* (Rs. 14,158).—This work, after completion, has been handed over to the Hydraulic Research Officer, attached to the Irrigation Branch, Public Works Department.

16. *Pumping Plant, valves, etc., for Hydraulic Research Laboratory.* (Rs. 36,608).—All the specials, pumps and motors have now arrived and the work of installing them is in progress.

The overhead tank has been completed.

17. *Surface drains in Fortland area.* (Rs. 22,862).—The drains in Block No. 13 have been completed and those in Block No. 14 are under construction.

18. *Thanesar Fair Water-Supply.* (Rs. 1,11,234).—Three tube-wells with overhead reservoirs were erected, at extremely short notice, on the fair grounds at Thanesar. The work which was commenced in June was completed before the commencement of the fair on November 12th, 1928. The arrangements proved a great success and worked satisfactorily.

19. *Providing a complete Sanitary Installation for the New Central Jail, Multan.* (Rs. 1,41,762).—The works comprised in this scheme comprise (1) Water Supply, (2) Drainage.

The former consists of arrangements for the supply of water for drinking and flushing purposes and the latter of inframural and intercepting drains, outfall drain, storm overflow, flushing tanks and disposal works.

The work is well advanced and all pipes and specials, etc., have been received.

20. *Providing Mechanical arrangements for lifting water in District Jail, Jhang.* (Rs. 11,565).—The work is nearing completion.

21. *Montgomery Central Jail Water-Supply.* (Rs. 45,151).—The work has been completed.

22. *Shahpur Jail Water-Supply.* (Rs. 11,010).—The work has been completed.

23. *Clerks Quarters Sargodha, Water Supply and Drainage.* (Rs. 12,598).—Both the works are nearing completion.

24. *Warcha Water-Supply.* (Rs. 73,799).—The object of this scheme is to supply water to the Salt Mines and also to the Public Works Department Stone quarries. The work consists of 5 important items —

(i) Cement concrete drain for impounding water at the Mitha Pattan Gorge.

(ii) 3" steel pipe-line from the dam to a reservoir at the Warcha Salt Mines and 2" pipe onwards to the Public Works Department quarries.

(iii) Two break pressure tanks.

(iv) 12 suspension crossings to carry the pipe line across the nullahs.

(v) 5,000 gallons capacity cement concrete service reservoir from the Public Works Department quarry.

The work is well in progress and will be completed before the end of April 1929.

25. *Water-Supply to Fountains and Grass Plots in Old Fort.* (Rs. 13,780).—The work entrusted to this Department has been completed.

26. *Central Heating Installation, Domestic Hot Water Supply for Nurses' Home and Laundry and Disinfecting Plant, Maternity Hospital, Lahore.* (Rs. 53,800).—Pipes to carry hot water to all the blocks have been installed. The laundry plant is under order.

The central heating installation has not been put in hand, as Government sanction has not yet been received.

27. *Water Supply Maternity Hospital, Lahore.* (Rs. 27,091).—The work, except a few connections to sanitary fittings, has been completed.

28. *Sewerage Maternity Hospital, Lahore.* (Rs. 68,527).—The work has been practically completed. The pumping plant has arrived and it will shortly be erected.

29. *Equipment for Laundry, Maternity Hospital, Lahore.* (Rs. 11,634).—The contract for the work has been given and the equipment is on order in England.

(b) Works in connection with Local Bodies are described below :—

1. *Multan Water Supply.* (Rs. 12,57,367).—With the exception of service reservoir, the whole of the water supply scheme was completed in 1927. The question of providing a steel tank of 40,000 gallons capacity having been finally settled, this work was taken in hand and will be completed by the end of April 1929.

2. *Dajal Trial Boring—II Attempt.* (Rs. 1,782).—The second trial boring was sunk to a depth of 115 feet, but the water was found unfit for drinking purposes. It is now proposed to clean the well at Basti Burrewala to see if potable water can be obtained from this source.

3. *Dera Ghazi Khan Water works :—*

(a) *Legget Strainer.* (Rs. 7,311).—The lowering of the strainer has been completed and it will be put into Commission early next year.

(b) *New Robey Oil Engine.* (Rs. 10,642).—The engine house and the pump chamber have almost been completed and the plant is being erected.

(c) *Sinking of 2 percolation wells.* (Rs. 24,650). *Sinking of 3 more percolation wells.* (Rs. 27,406).—The wells are being sunk, two wells have been sunk to a depth of 19' and 21', respectively, and work on the other three wells was commenced in November 1928.

(d) *Improvement to Dera Ghazi Khan Water Works.* (Rs. 17,020).—The work consists of renewing and overhauling of the distribution system. It should be completed in a month's time.

NOTE.—The running of these water works was transferred to this Department in January 1928, since when as a result of tapping fresh sources of supply, of improvements to the distribution system, and of metering domestic supplies, all cause for complaint on account of the scarcity of water has been removed.

4. *Montgomery Market Drainage.* (Rs. 73,160).—The work has been completed. A supplementary estimate to provide for the flushing of the drains and for lifting the sullage at the disposal works which were essential to complete the scheme, has been accepted by the Municipal Committee and the work will be put in hand soon.

5. *Chik Jhumra Drainage.* (Rs. 1,04,735).—This work has been completed, and certain contingent works, such as improvements to drains and pavements inside the Mandi, which were commenced during the year have also been completed.

6. *Maghiana Drainage Scheme.* (Rs. 2,97,605).—The main scheme was completed last year, but the up-to-date flushing arrangements, a pucca sullage main carrier and a boundary wall at the disposal works are now being provided at an estimated cost of Rs. 10,805.

7. *Sargodha Water Works Joining of two tanks.* (Rs. 21,430).

8. *Earth-filling in blocks Nos. 18 and 19.* (Rs. 16,076).—Both works were taken in hand simultaneously in order that the earth excavated from the tanks might be used for raising the ground level in blocks Nos. 18 and 19. The work has been completed and the earth filling cost only Rs. 11,500.

9. *Khushab Water Works.* (Rs. 20,085).—It was decided to sink an additional well as the supply from the two existing wells was insufficient to meet the demand. The work was commenced in November 1928 and it will be completed before the end of the financial year.

10. *Ferozepore Drainage Extension.* (Rs. 82,944).—This work has been in progress for over a year. A group of five *basties* has been drained and the drains handed over to Municipal Committee, Ferozepore City, for maintenance. A new well for flushing purposes has been sunk and land pumps have been ordered. The construction of the storm water drains has been postponed pending the decision of the Irrigation Department on the question of allowing the storm water to discharge into the Ferozepore weir lake area.

11. *Abohar Drainage Scheme.* (Rs. 2,45,209).—The work in connection with the scheme included in this estimate has been completed and handed over to the local body. The estimate for metalling the streets in the abadi area, which forms an integral part of the drainage scheme, has been sent to the local body for acceptance and the provision of funds.

12. *Abohar Water-Supply.* (Rs. 3,25,357).—The work is nearing completion and arrangements for running the plant and testing the pipe-line are being made.

13. *Jagadhari Drainage Scheme.* (Rs. 1,34,966).—Drainage of blocks Nos. 1, 2, 3 and 4 has been completed and of blocks Nos. 5 and 6 is in hand. The flushing arrangements are nearly completed.

Progress was delayed owing to the failure of the local body to deposit funds.

14. *Moga Drainage Scheme.* (Rs. 1,41,624).—All the intramural drains and the out-falls have been completed. Work on the disposal works was held up as the local body could not arrive at a decision in regard to the site.

15. *Ludhiana Drainage Extension Scheme.* (Rs. 3,35,000).—Funds for executing this scheme were deposited very late in the year. Contracts for bricks and kunkar and for draining two blocks have, however, been given and work has commenced.

16. *Karnal Drainage Scheme.* (Rs. 1,45,851).—The first instalment of funds having been received from the local body, contracts for the extramural drains have been let out.

17. *Water-Supply Scheme, Pathankot (Rs. 1,71,145).*—The work has been completed. The pumping plant was put into commission on 13th December 1928 and the distribution system functioned on the following day.

18. *Water-Supply Dalhousie Extension. (Rs. 44,902).*—The work of laying the main has been completed and certain improvements at the head-works will be completed early in the year 1929.

19. *Lahore Sewerage, Gwalmandi. (Rs. 29,382).*—This work which is nearly completed will be finished in January 1929.

20. *Sialkot Drainage Scheme (Rs. 3,16,144).*—During the year the work on the out-fall and intercepting drains was completed with the exception of one railway culvert and a portion of the southern intercepting drain, regarding the alignment of which the Municipal Committee is still undecided.

21. *Improvements and additions to Sialkot Water-Supply. (Rs. 1,50,258).*—The work was completed during the year. The Tibba Jalian tube-well, which was intended to serve as a subsidiary source of supply, proved a failure and an application was placed before the Urban Sanitary Board for a grant-in-aid to enable a new well to be sunk at this place. It is hoped that the work will be taken in hand early next year.

22. *Surface Drainage Scheme for a portion of New Town of Sheikhupura. (Rs. 46,654).*—The work was completed on 15th February 1928 and has been handed over to the Local Body.

23. *Sheikhupura Grain Market Drainage Scheme. (Rs. 73,084).*—The work was commenced on 20th February 1928 and completed on 12th December 1928.

24. *Chuharkana Drainage Extension Scheme. (Rs. 16,341).*—The work has been completed.

GENERAL.

The maintenance of all water supplies in Jails was taken over by this Department from the Jail Department during the year under report and, as the result of overhauling the pumping plant, the improved running of the water supply services is everywhere apparent.

The Water Works at Rawalpindi and the pumping plant at Sarangpur, Ambala District, were also maintained by the Department during the year under review.

Government have adopted the policy of extending a helping hand on a much larger scale than hitherto towards the rural areas which suffer from a paucity of drinking water and a considerable volume of work in preparing rough preliminary schemes for improving the water supply of these as well as in making trial borings in search of potable water was undertaken by the Department during the year.

Detail of Sanitary Projects prepared during the year under report by the Executive Engineers, Public Health Divisions, is given below :—

PRELIMINARY PROJECTS.

<i>Name of Project.</i>	<i>Amount of Project.</i>
	Rs.
(a) <i>Major Works—(Provincial)—</i>	
1. Proposed Improvements to Sewerage System and Lavatories in connection with Civil Secretariat and adjoining offices, Lahore	... 20,762
2. Fire protection for Government House, Lahore	... 44,576
3. Punjab Public Health School, Lahore	... 27,910
4. Taraki Quarry Water Supply	... 46,275
(b) <i>Minor Works</i>	... 9,009
Total	... 1,48,532
(a) <i>Major Works—(Contribution)—</i>	
1. Drainage Scheme, Muktsar	... 3,31,897
2. Pind Dadan Khan Water-Supply (alternative project)	... 2,03,272
3. Village Water Supply in certain villages in the Pind Dadan Khan Tahsil	... 3,04,322
4. Thal Ilaqua Water Supply to the villages Jethal and Dhudi	34,952
5. Drainage Scheme, Bakkar	... 2,14,680
6. Ditto Khushab	... 2,02,320
(b) <i>Minor Works</i>	... 7,560
Total	... 12,99,008
GRAND TOTAL	... 14,47,535

DETAILED PROJECTS.

<i>Name of Project.</i>		<i>Amount of Project.</i>
		Rs.
<i>(a) Major Works (Provincial)—</i>		
1. Water Supply and Drainage at the proposed Hospital, Police Lines, Lahore	...	27,467
2. Sewerage Scheme for Indian Clerks Quarters, Lahore	...	2,70,781
3. Water Supply and Drainage Sub-Jail, Kasur	...	33,268
4. Steam Supply New Maternity Hospital, Lahore	...	22,008
5. Equipment of Laundry ditto	...	11,634
6. Heating Installation for Main Hospital Block B, New Maternity Hospital, Lahore	...	10,920
7. A / A to Water Supply, Mayo Hospital and King Edward Medical College, Lahore (2nd Tube well)	...	12,348
8. Maclagan Engineering College, Lahore (Sewerage Scheme)	...	90,775
9. Installing a Disinfector in Central Jail, Lahore	...	11,646
10. Improvements to Water Supply in King Edward Medical College and Mayo Hospital, Lahore	...	18,777
11. Proposed Extramural Drainage for Borstal Institution, Central Female Jail, Lahore	...	81,289
12. Installing a Disinfector in New Sub-Jail, Kasur	...	10,683
13. Proposed Improvements to Sewerage system and Lavatories in the Civil Secretariat and adjoining offices, Lahore	...	19,549
14. Water Supply High Court and Accountant-General's Office, Lahore	...	29,716
15. Water Supply at Mayo School of Arts, Lahore	...	11,544
16. Water Supply for District Jail, Gujranwala	...	28,696
17. Constructing of Workshop for Public Health Division, Lahore	...	19,258
18. Vaccine Institute Water Supply, Lahore	...	16,202
19. Providing Sanitary heating and hot water installation in the Block C (Septic Block) New Maternity Hospital, Lahore	...	12,959
20. Lining of the remainder of the Canal Supply Channel from the Canal to Jail Road Cemetery, Lahore	...	11,505
21. Civil Secretariat, Lahore, Improvements to Sewerage system	...	24,339
22. Surface Drainage, Police Lines, Amritsar	...	26,527
23. Water Supply and Drainage, New Sub-Jail, Gujrat	...	32,000
24. Drainage Scheme Civil Hospital, Amritsar	...	25,692
25. Providing Tube for the Jail Road Cemetery, Lahore	...	14,482
26. Providing Sanitary Heating and Hot Water Installation in Septic Block (Double Storey) New Maternity Hospital, Lahore	...	14,441
27. Providing an additional pumping plant Central Jail, Multan	...	13,867
28. Providing complete Sanitary Installation in the New Central Jail, Multan	...	1,41,762
29. Water Supply and Drainage, Multan Civil Hospital	...	53,199
30. Khanewal School Water Supply	...	12,968
31. Multan District Jail Water Supply Extensions	...	11,367
32. Lyallpur Agricultural College and Jail Water Supply scheme.	{	1,85,566 (A) 1,92,189 (B)
33. Thanesar Fair Water Supply	...	1,11,103
34. Lahore Workshop	...	19,258
<i>(b) Minor Works</i>	...	7,15,606
Total		23,45,331

<i>Name of Project.</i>		<i>Amount of Project.</i>
		Rs.
<i>(a) Major Works (Contribution).</i>		
1. Musakhel Water Supply	...	37,394
2. Lyallpur Drainage Extensions	...	2,94,913
3. Phullarwan Water Supply Constructing Bund	...	14,643
4. Pind Dadan Khan Water Supply	...	4,04,634
5. Filling up depression near Mandi, Abadi Moga	...	23,721
6. Collection of stone metal and soling bricks for metalling streets in Abohar	...	25,296
7. Providing side pavement along metalled Roads and drains in Abadi Streets, Abohar	...	16,981
8. New Drains and pavements, Ambala City	...	10,542
9. Isakhel Water Supply	...	1,36,844
10. Okara Drainage Scheme	..	2,40,934
11. Dera Ghazi Khan Water Works (7th well)	...	12,115
12. Sinking of three more percolation wells at Dera Ghazi Khan New Head Works	...	27,406
13. Leiah Drainage Scheme	...	31,758
14. Montgomery Market drainage (Improvement)	...	25,803
15. Dera Ghazi Khan Water Works, Duplicate set of pumping plant, for the new Head Works	...	29,790
16. Dera Ghazi Khan Storm Water Drainage Scheme	...	1,99,924
17. Rohtak Water Supply Scheme	...	5,42,130
18. Extending the Thall Ilaua Water Supply to Lilla Town...		26,092
19. Thall Ilaua Water Supply Scheme	...	60,415
20. Pind Dadan Khan Village Water Supply	...	1,73,689
21. Railway culvert over storm channel Sialkot Drainage Scheme	...	24,182
22. Sialkot Drainage Scheme in two parts	...	19,121
23. Choa and Katas Water Supply	...	19,633
<i>(b) Minor Works</i>	...	82,790
Total		... 24,80,250
GRAND TOTAL		... 48,25,581

Detail of projects prepared in the Circle Office under the supervision of the Superintending Engineer, Public Health Circle, Punjab, is given below :—

<i>Name of Project.</i>		<i>Amount of Project.</i>
		Rs.
<i>(a) Major Works (Provincial)—</i>		
1. District Police Lines Drainage, Amritsar (Preliminary)	...	26,306
2. Jails Drainage Amritsar (Preliminary)	...	83,565
3. Kasur Sub-Jail Drainage (Preliminary)	...	33,218
4. MacLagan Engineering College Sewerage Scheme (Detailed)		90,775
5. Lady MacLagan "Girls School, Lahore," Drainage and Water Supply (Preliminary)	...	41,000
6. Arts School Boarding House Water Supply (Detailed)	...	12,012
7. Civil Hospital, Amritsar Drainage (Detailed)	...	31,800
8. Sanitary arrangements Thanesar Eipse Fair and Miscellaneous Water Supply (Detailed)	...	38,200
9. New Medical School, Amritsar Drainage (Preliminary)	...	35,476
<i>(b) Minor Works</i>	...	46,068
Total		... 4,38,420

Name of Project.	Amount of Project. Rs.
(a) <i>Major Works (Contribution)</i> —	
1. Drainage Scheme, Muktsar (Preliminary)	... 3,97,784
2. Patti Drainage Scheme ditto	... 2,35,555
3. Jowala Mukhi Water Supply (Detailed)	... 40,000
4. Drainage Scheme, Dera Baba Nanak (Preliminary)	... 42,598
5. Nizamabad Drainage Scheme (ditto)	... 48,000
6. Tarn Taran Drainage (ditto)	... 1,82,395
7. Hazro Drainage Scheme Improvements (Preliminary)	... 48,000
8. Chichawatni Drainage Scheme (ditto)	... 1,29,980
9. Rohtak Water Supply Land Acquisition (Detailed)	... 14,349
10. Majitha Town Drainage (Preliminary)	... 89,900
11. Hafizabad and Garhi Awan Drainage (Preliminary)	... 70,000
12. Montgomery Drainage Scheme (Preliminary)	... 6,00,000
13. Arafwala Mandi Drainage (Preliminary)	... 1,94,287
14. Ditto Water Supply (Preliminary)	... 2,41,000
15. Vehari Mandi Drainage (Preliminary)	... 1,99,105
16. Lodhran New Town and Mandi Drainage (Preliminary)	... 1,50,000
17. Gujar Khan Drainage (Preliminary)	... 70,000
18. Mandi Baha-ud-Din Drainage (Preliminary)	... 40,000
19. Burewala Mandi Water Supply (Preliminary)	... 2,52,000
20. Basirpur Town Drainage (Preliminary)	... 68,000
21. Basirpur Mandi ditto	... 1,66,171
22. Nankana Sahib Drainage (Preliminary)	... 54,256
23. Burewala Sanitary Public conveniences (Detailed)	... 15,341
24. Vehari ditto ditto	... 19,134
25. Golewali Water Supply (Detailed)	... 25,708
26. Basirpar Water Supply (Preliminary)	... 1,31,000
27. Duniyapur Mandi Drainage (Preliminary)	... 2,16,610
(b) <i>Minor Works</i>	... 22,628
Total	... 37,73,801
GRAND TOTAL	... 42,12,221

AMAR NATH NANDA,
Superintending Engineer, Public Health Circle, Punjab.

Number.	Name of Municipality.	Population at the census of 1921.	Average daily quantity of water pumped during the year ending 31st March 1928.	Average daily supply per head of population.	RECEIPTS.					EXPENDITURE.										BALANCE.				
					Water rate.	Sale of water.	Rent of meters.	Other receipts.	Total Receipts.	Establishment.	Pumping.	Settling tank and filter.	Intake.	Distribution.	Repairs.	Water analysis.	Miscellaneous.	Total.	Credit balance.	Debit balance.				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			
					Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	R.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.			
1	Ambala (Handesra)	28,581	3,87,635	13.57	...	20,374	...	...	20,374	10,311	11,602	...	904	2,121	2,826	...	12,015	39,780	...	19,495				
2	Amritsar	1,57,031	20,52,702	13.07	...	97,896	1,472	1,438	1,00,803	28,071	81,259	...	...	8,034	5,091	...	...	92,155	8,651	...				
3	Dalhousie	1,457	20,000	13.73	4,312	...	...	...	4,312	492	...	...	1	217	19	...	...	739	3,573	...				
4	Dera Ghazi Khan	20,731	1,25,471	6.05	...	1,125	...	...	1,125	4,690	3,231	...	...	1,183	216	...	1,512	11,932	...	10,807				
5	Dharamsala {Municipal Cantonment}	5,000 4,000	68,000 33,000	22 20	4,314	...	...	...	4,344	336	...	...	...	3,303	673	...	...	4,517	...	173				
6	Gojra	7,622	80,000	14.95	...	1,289	...	...	1,289	1,824	1,827	400	3,750	340	407	...	...	8,548	...	7,256				
7	Jasanwala	4,000	80,000	20	442	...	...	828	1,270	1,759	2,116	348	...	...	...	...	...	4,523	...	3,253				
8	Lahore	257,295	3,273,232	12.70	2,96,267	...	...	...	2,96,267	50,760	94,259	...	...	2,803	14,434	2,723	...	1,65,082	13,184	...				
9	Ludhiana	51,830	768,152	14.81	...	26,050	...	...	26,050	8,500	10,144	...	...	...	...	...	...	18,544	7,506	...				
10	Lyallpur	28,136	496,669	17.65	...	30,610	...	...	30,610	8,446	6,624	4,451	6,222	2,087	5,872	49	475	34,617	...	4,007				
11	Murree	2,397	142,074	59.25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...				
12	Pind Dadan Khan	9,919	24,960	2.5	...	...	...	...	...	1,044	2,684	...	...	127	235	...	...	4,210	...	4,210				
13	Rawalpindi	55,251	1,406,336	25.50	17,321	1,762	...	...	19,083	8,380	2,752	...	...	...	...	...	...	29,132	10,049	...				
14	Rewari	23,129	106,876	4.6	...	...	...	...	...	5,659	9,791	...	...	171	1,286	...	...	16,905	395	...				
15	Sargodha	20,000	251,814	12.5	8,000	11,321	...	352	18,398	6,596	5,170	297	69	3,330	1,782	1,793	150	19,900	...	1,503				
16	Simla	23,149	314,829	12.04	1,74,783	56,198	8,662	2,057	2,41,703	93,648	68,123	1,626	...	19,933	3,523	...	...	1,86,860	54,843	...				
17	Sialkot	56,018	505,647	9.02	...	31,535	...	1,259	32,794	13,691	26,417	...	...	829	5,246	...	...	46,155	...	13,391				
18	Toba Tek Singh	5,041	48,000	9.5	1,633	257	...	...	1,895	1,195	4,345	...	...	...	115	...	...	9,655	...	7,760				
19	Khushab	10,009	31,000	3.1	...	11,701	...	...	11,701	1,559	1,937	...	75	485	102	...	...	4,158	7,541	...				
20	Muktsar	10,539	80,500	7.6	1,852	813	593	4,972	8,230	2,047	1,998	393	2,233	5,946	307	...	750	12,574	...	4,344				
21	Bhalwal	...	...	...	...	...	...	...	...	2,966	58,140	...	Includes all items.								...	...	...	

AMAR NATH NANDA,
Superintending Engineer, Public Health Circle, Punjab.

APPENDIX B.

PROCEEDINGS OF THE URBAN SANITARY BOARD.

The Urban Sanitary Board met on six occasions during the year as compared with five in the previous year.

The composition of the Board, which underwent no change during the year, comprised, in addition to the Minister for Local Self-Government, who acts as President, seven official members, including the Director of Public Health, who also acts as Secretary, and seven non-official members, all of whom are Members of the Legislative Council. One non-official member (Rai Bahadur L. Mohan Lal, B.A., LL.B., M.L.C.) attended every meeting of the Board, three attended four meetings, two three meetings and one member attended on one occasion only.

The calendar year 1928 embraces portions of the financial years 1927-1928 and 1928-1929. During the former year the sum of Rs. 8,50,000 was placed at the disposal of the Board for allotment, out of which grants aggregating Rs. 4,54,116 were allotted up to 31st December, 1927, leaving a balance of Rs. 3,95,884 available for distribution before the close of the financial year at the end of March, 1928. Owing to the fact that several schemes which it was expected would come before the Board during the financial year 1927-1928, failed to do so, either on account of lack of technical sanction or of other unavoidable causes, only a sum of Rs. 50,671 was allotted before the end of the financial year on March 31st 1928 and the balance—Rs. 3,45,000 was surrendered to Government in the late list of Excesses and Surrenders.

In April 1928 a grant of Rs. 6,00,000 was placed at the disposal of the Board, but this allotment was subsequently reduced to Rs. 4,75,000 by the transfer of Rs. 1,00,000 to the Rural Sanitary and Improvement Board and of Rs. 25,000 to the District Board, Karnal, for sanitary works at Thanesar in connexion with of the Sun Eclipse Fair. Out of this sum grants aggregating Rs. 4,54,419-8-0 were allotted up to December 31st 1928 leaving a balance of Rs. 20,580-8-0 which, with the sum of Rs. 3,45,000 surrendered at the end of the preceding year, made a total of Rs. 3,65,580-8-0 available for distribution during the last 3 months of the financial year. The schemes assisted during the calendar year which were 24 in number, are detailed in the list given at the end of this note together with the grants-in-aid given to each. Towards the close of the year, at the urgent request of Government, owing to financial stringency, it was found possible, by slightly delaying the payment of certain grants, to surrender a sum of Rs. 1,00,000 to Government, but this sum was replaced at the credit of the Board in the following financial year.

The Auditor-General has called attention to over-budgetting or underspending on the part of the Urban Sanitary Board and it may therefore be well to state that whilst the amount of the annual grant placed at the disposal of the Board is conditioned, partly by the state of the provincial exchequer and partly by the sum expended in the previous year, the actual expenditure is determined by the rate of progress, which cannot with accuracy be foretold, made by local bodies in completing and in submitting to the Board the numerous sanitary projects which they have in hand or in contemplation. In these circumstances an unexpected delay in completing one or two important schemes upsets all calculations and causes an unforeseen surplus at the end of the year. It is possible to avoid this contingency by allotting grants to schemes not yet ready for execution, but this procedure, which was at one time the practice and which frequently led to the diversion of grants to other objects, has been discontinued, and it thus comes about that an unexpended balance at the end of the year is due not so much to overbudgetting as to more careful administration.

In several other respects the administrative machinery of the Board was overhauled and improved during the year. Thus the inclination—extremely human even in a Board—to avoid underspending its income by making premature grants has been removed by the decision of the Financial Department that sums surrendered at the end of one year will be replaced at the credit of the Board in the following year *as an addition to the annual grant*. Then again, certain important modifications in the method of disbursement of grants-in-aid to Local Bodies were introduced during the year. Grants-in-aid given to local bodies for sanitary projects entrusted for execution to the Public Works Department are no longer disbursed by means of payment, but by a series of payment of sums sufficient to meet immediate requirements, whilst a single in the case of those sanitary works which local bodies execute by means of their own agency grants are not disbursed until the actual bills of contractors or suppliers are forthcoming.

These changes of procedure, combined with a fresh definition of the conditions governing the grant of administrative approval by Commissioners to sanitary projects costing less than Rs. 50,000, have been the means of enabling the Board to assist more schemes than formerly and at the same time of ensuring that the grants made by the Board are spent upon the object for which they were given.

The auditor attached to the Board checked the accounts of a number of aided schemes carried out by local bodies with a view to the detection of irregularities and to the discovery of unexpended balances, which latter were in due course recovered and credited to Government.

List of schemes assisted by the Board during the calendar year.

JANUARY 1ST—MARCH 31ST 1928.

		Rs.	A.	P.
1.	Public Health Section of Palwal Show ...	1,775	0	0
2.	Khanuwan (Gurdaspur district) Drainage scheme	1,000	0	0
3.	Pind Dadan Khan water supply ...	647	0	0
4.	Improvement of water supply at Tikagarh (district Kangra).	2,686	0	0
5.	Abohar water-supply scheme ...	44,563	0	0
Total ...		50,671	0	0

APRIL 1ST—DECEMBER 31ST 1928.

6.	Khushab water-supply scheme ...	20,085	0	0
7.	Construction of a well at Sunari khurd (district Rohtak).	1,200	0	0
8.	Abohar drainage scheme ...	42,604	0	0
9.	Trial boring at Ambala Cantonment ...	7,579	0	0
10.	Abohar water-supply scheme ...	44,563	0	0
11.	Trial boring at Thanesar ...	3,052	0	0
12.	Abohar water-supply scheme ...	7,718	0	0
13.	Pulser chloronome at Jullundur ...	11,284	0	0
14.	Dera Ghazi Khan water-supply extension scheme.	44,426	0	0
15.	Kangah Dogran drainage extension scheme ...	5,827	8	0
16.	Pathankot water-supply scheme ...	6,109	0	0
17.	Pulser chloronome at Rawalpindi ...	653	0	0
18.	Musa Khel water-supply scheme ...	37,394	0	0
19.	Installation of pulser chloronome at Thanesar ..	3,779	0	0
20.	Installation of pulser chloronome at Jullundur	4,098	0	0
21.	Isakhel water-supply scheme ...	1,08,255	0	0
22.	Ludhiana drainage scheme ...	60,473	0	0
23.	Chloramine apparatus ...	320	0	0
24.	Rohtak water-supply scheme ...	45,000	0	0
Total ...		4,54,419	8	0

APPENDIX C.

Statement showing the death rates from cholera, small-pox, fever and dysentery and diarrhoea for five years preceding and for the period since the introduction of drainage or water supply or both in the und mentioned towns :—

Towns.	DATE OF COMPLETION OF WORKS OF		AVERAGE ANNUAL DEATH-RATE SINCE THE INTRODUCTION OF DRAINAGE OR WATER-SUPPLY OR BOTH.				AVERAGE ANNUAL DEATH-RATE FOR THE FIVE YEAR'S PERIOD PRECEDING THE INTRODUCTION OF DRAINAGE OR WATER-SUPPLY OR BOTH.				REMARKS
	Drainage.	Water-supply.	Cholera.	Small-pox.	Fever.	Dysentery and diarrhoea.	Cholera.	Small-pox.	Fever.	Dysentery and diarrhoea.	
1	2	3	4	5	6	7	8	9	10	11	12
Rohtak	1923	...	0·2	0·2	13·3	1·1	0·5	0·3	27·7	1·2	
Rewari	...	1920	0·4	0·2	6·0	1·4	0·4	0·4	8·5	3·2	
Ambala	...	1895	0·4	0·4	12·6	2·9	0·5	0·4	19·3	6·4	
Simla	1893	1893	0·02	0·3	12·4	1·0	...	1·1	17·1	1·4	
Dharmasala	...	1908	0·5	0·1	9·4	2·0	0·3	...	6·1	1·6	
Hoshiarpur	1925	...	0·9	0·6	11·9	0·1	0·2	0·7	9·5	0·1	
Ludhiana	1895	1909	0·3	0·7	16·0	2·2	0·4	2·7	20·8	1·6	
Jagraon	1907	...	0·4	0·9	12·6	1·6	0·6	1·5	9·3	2·0	
Ferozepore	1916	...	0·5	0·6	12·3	1·3	0·2	0·7	9·8	1·1	
Zira	1913	...	0·9	1·3	17·7	0·7	0·3	4·0	16·6	0·9	
Fazilka	1913	...	0·9	1·1	21·3	1·6	2·2	2·6	21·4	1·7	
Muktsar	...	1925	0·1	3·2	12·0	0·9	0·04	0·04	11·3	1·1	
Labore	1921	1881	0·2	0·9	12·9	1·9	0·2	0·6	20·0	1·3	
Kasur	1922	...	2·3	0·3	13·8	1·2	1·6	1·0	21·8	1·0	
Amritsar	1885	1904	0·5	1·1	21·7	1·6	0·4	0·7	31·3	1·8	
Jandiala	1924	...	0·5	0·1	16·3	1·2	0·03	1·0	17·1	0·7	
Gurdaspur	1913	...	0·2	0·5	15·9	2·5	0·6	0·3	14·2	3·1	
Dalhousie	...	1894	0·03	0·1	11·0	1·6	...	...	9·6	2·4	
Pathankot	1915	...	1·3	0·5	17·9	3·0	0·8	0·7	12·4	2·8	
Sialkot	...	1915	0·4	0·4	13·5	2·1	3·0	1·2	9·6	2·3	
Gujranwala	1892	...	0·5	1·0	18·1	1·2	0·5	0·6	19·7	1·7	
Gujrat	1906	...	0·7	0·3	18·5	1·7	0·3	0·2	16·9	1·9	
Bhera	1917	...	0·2	0·7	19·0	1·8	0·03	0·7	17·8	1·7	
Sargodha	1907	1907	0·1	0·3	7·4	0·8	Not available.				
Khushab	...	1923	0·03	0·7	14·7	1·1	0·1	0·3	14·3	1·6	
Jhelum	1908	...	0·4	0·5	12·8	1·5	1·5	0·3	14·0	2·1	
Pind Dadan Khan	1909	1909	0·5	1·0	19·6	2·5	1·1	0·7	23·1	3·6	
Rawalpindi	1907	1887	0·6	0·4	17·9	2·2	0·5	0·1	16·4	3·4	
Murree	...	1894	0·1	0·1	14·2	1·7	0·7	0·4	14·8	0·9	
Mianwali	...	1904	0·1	0·4	18·0	1·6	Not available.				
Lyallpur	1904	1904	0·1	0·7	9·9	0·7	*2·8	*0·4	*16·3	*2·1	
Gojra	...	1916	0·1	0·5	6·7	0·7	†	†	†0·5	†	
Tandlianwala	1917	1924	0·3	0·8	7·4	0·3	0·8	0·8	4·6	...	
Toba Tek Singh	1920	1914	...	0·6	3·2	0·2	(a)	(a)	(a) 4·6	(a) 0·4	
Chak Jhumera	...	1913	...	0·3	6·6	0·6	Not available.				
Multan	1907	1923	0·01	0·1	12·3	2·7	...	1·0	14·7	2·0	
Shujabad	1922	...	0·02	0·7	19·5	1·3	0·7	1·1	31·1	2·9	
Dera Ghazi Khan... ..	...	1913	0·03	0·3	14·8	2·2	2·0	0·6	15·9	1·6	
Kalka	...	1890	0·3	0·1	13·8	2·1	1·7	0·2	15·2	3·9	

* Figures available for four years only.

† Figures for 1914 and 1915 only.

(a) Figures available for three years only.

APPENDIX D.

CHART I.

THE BIRTH AND DEATH RATE IN THE PUNJAB 1867-1928

80 *Per Mille*

60

40

20

0

Deaths. —
Births —

1867

1875

1885

1895

1905

1915

1928

YEARS

DEATH RATE FROM "FEVERS" IN THE PUNJAB 1867-1928

80 *Per Mille*

60

40

20

0

1867

1877

1887

1897

1907

1917

1928

CHART II.

INFANTILE MORTALITY RATE IN THE PUNJAB
1880—1928

400 *Per Mille*
Brima

300

200

100

0

1880

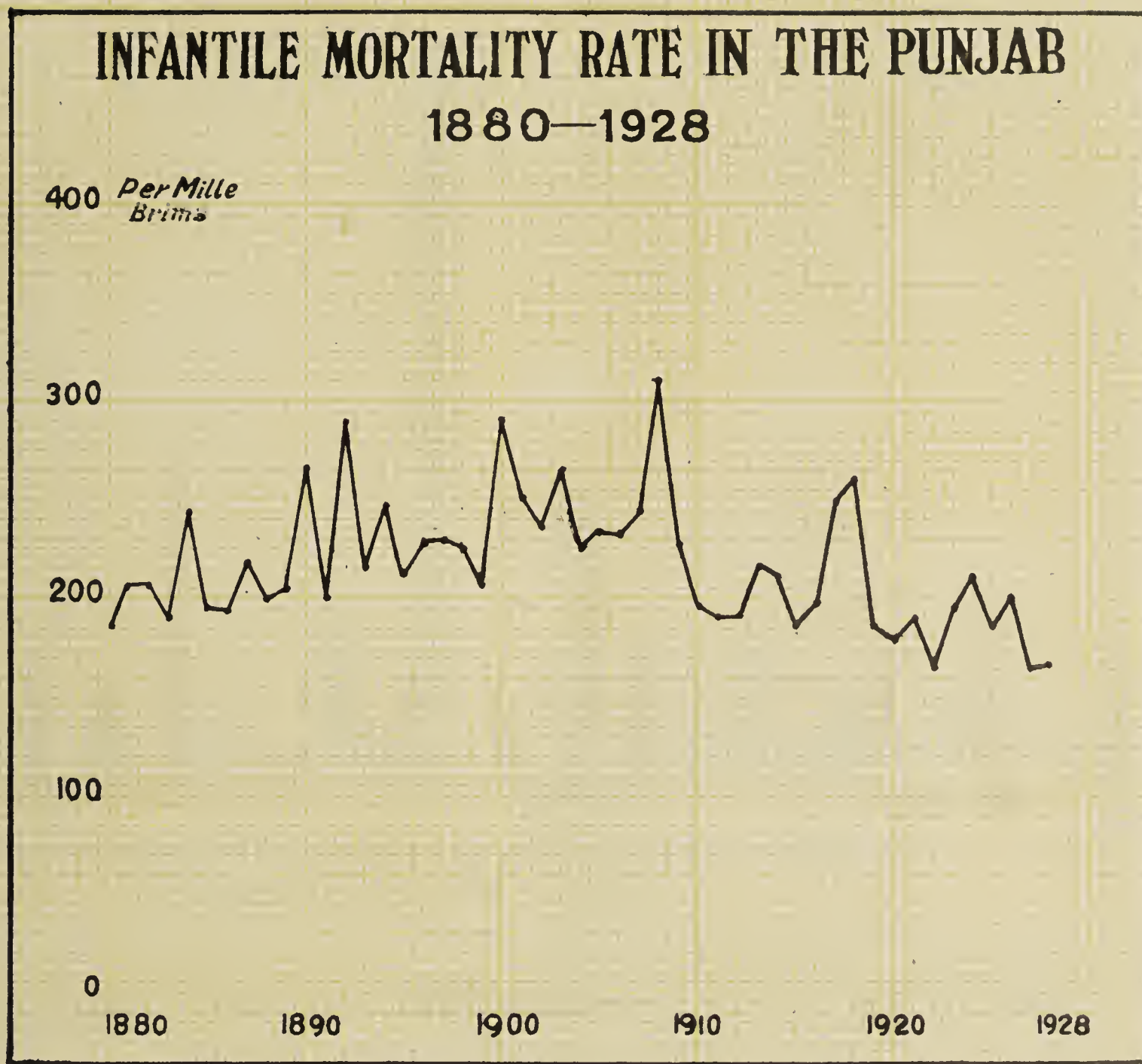
1890

1900

1910

1920

1928



DEATH RATE FROM CHOLERA IN THE PUNJAB 1867--1928

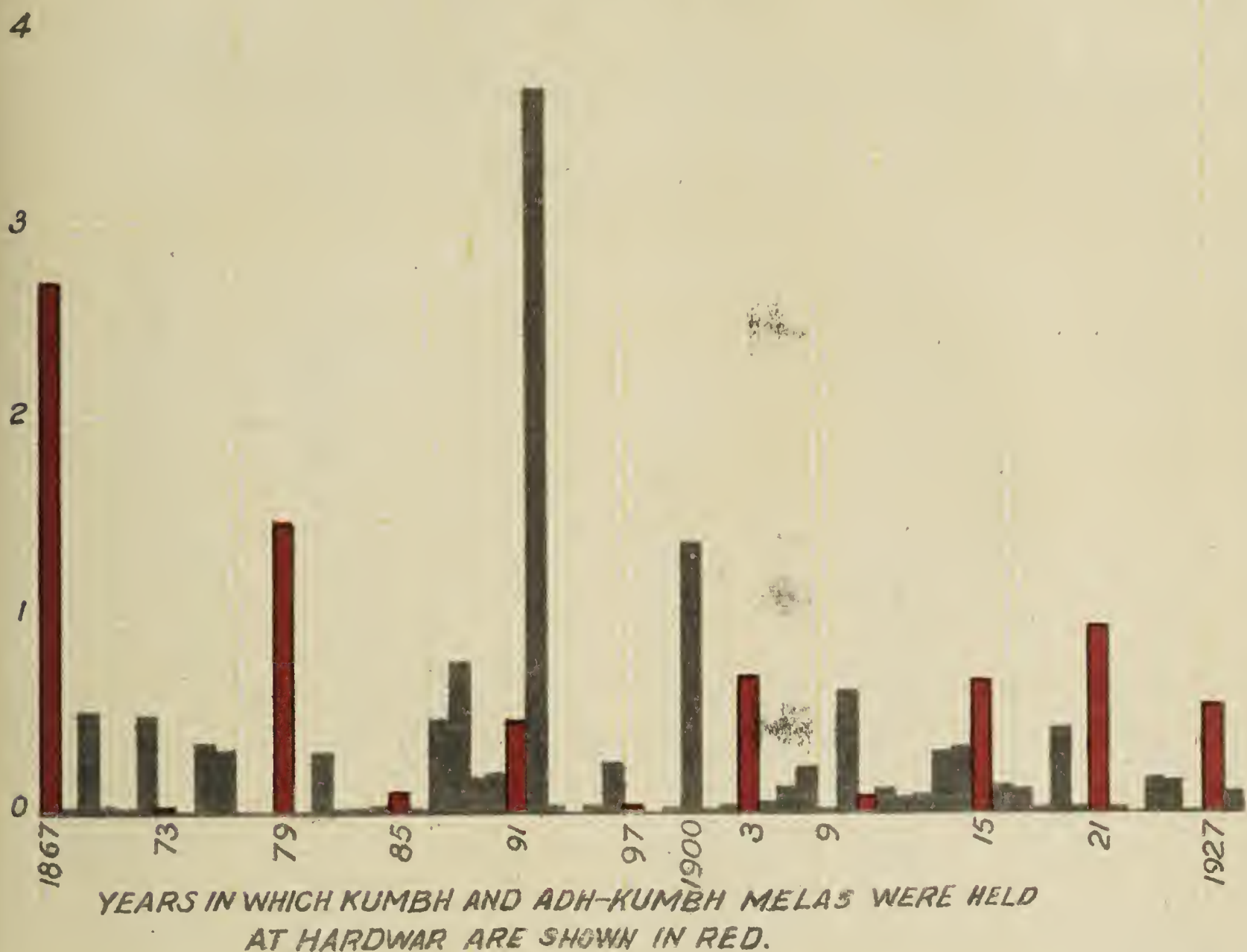
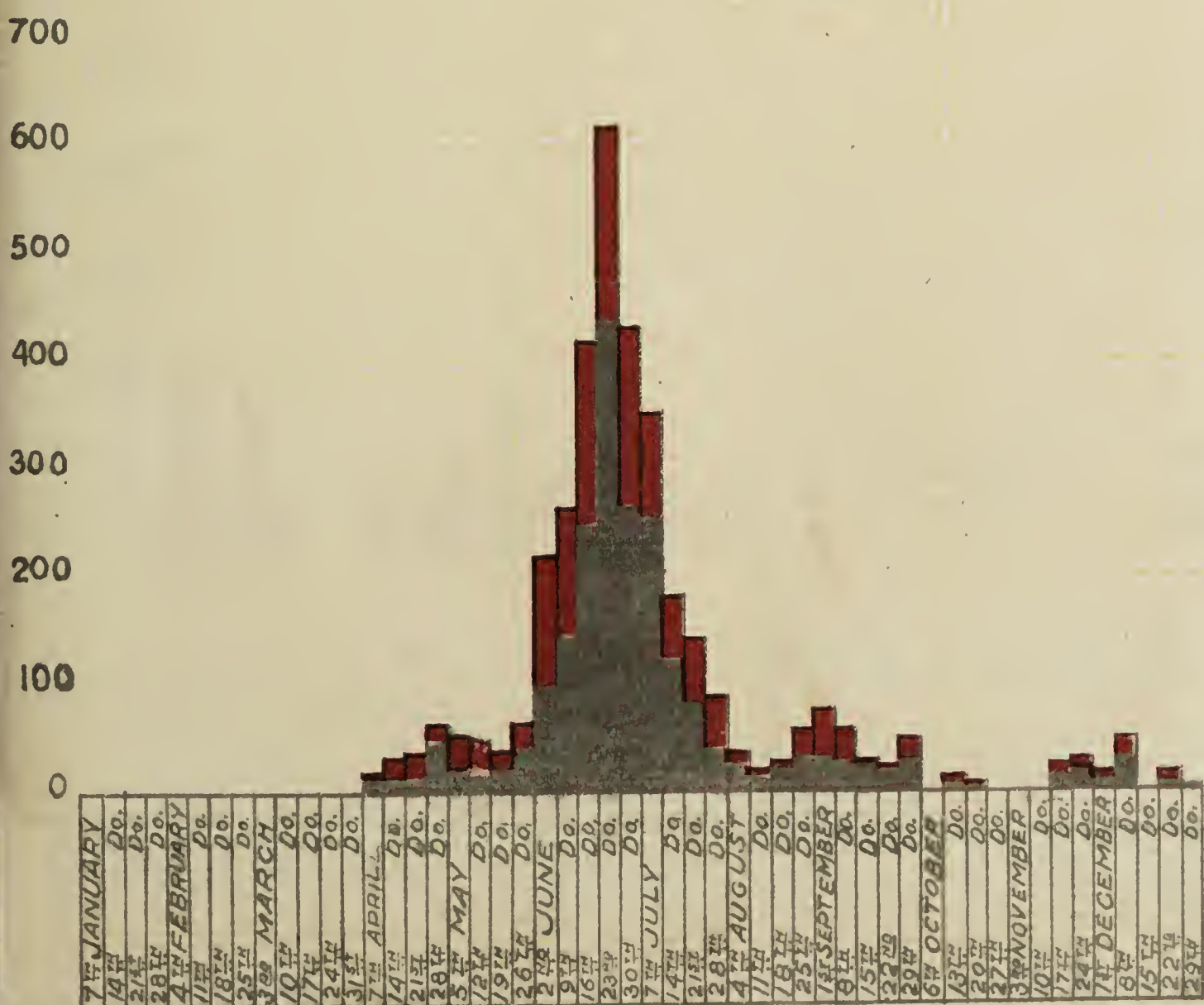


DIAGRAM SHOWING THE TOTAL NUMBER OF CASES AND DEATHS FROM CHOLERA BY WEEKS IN THE PUNJAB DURING THE YEAR 1928

CASES.....
DEATHS.....



DEATH RATE FROM SMALL POX IN THE PUNJAB 1867-1928

4 Per Mille

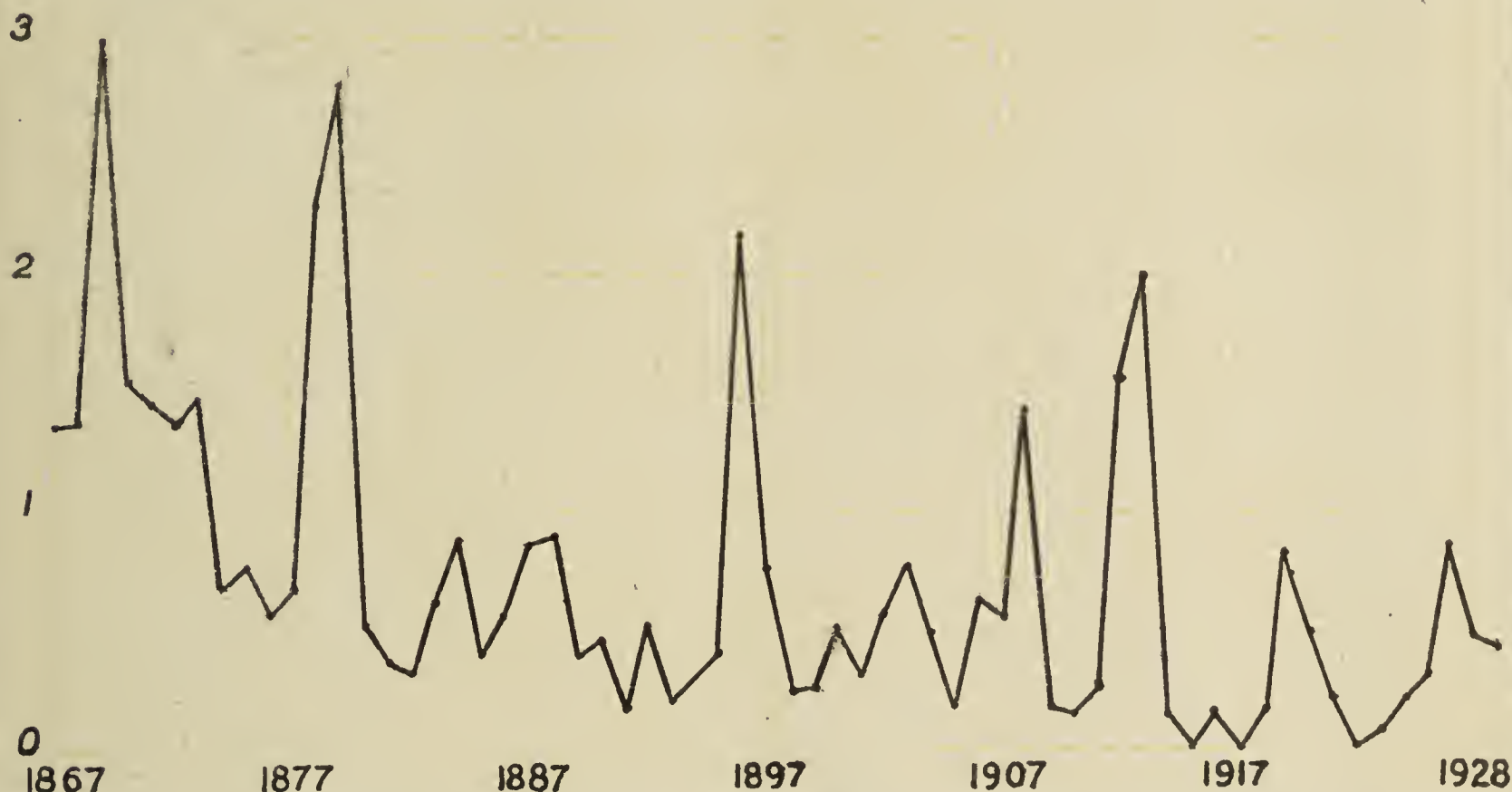
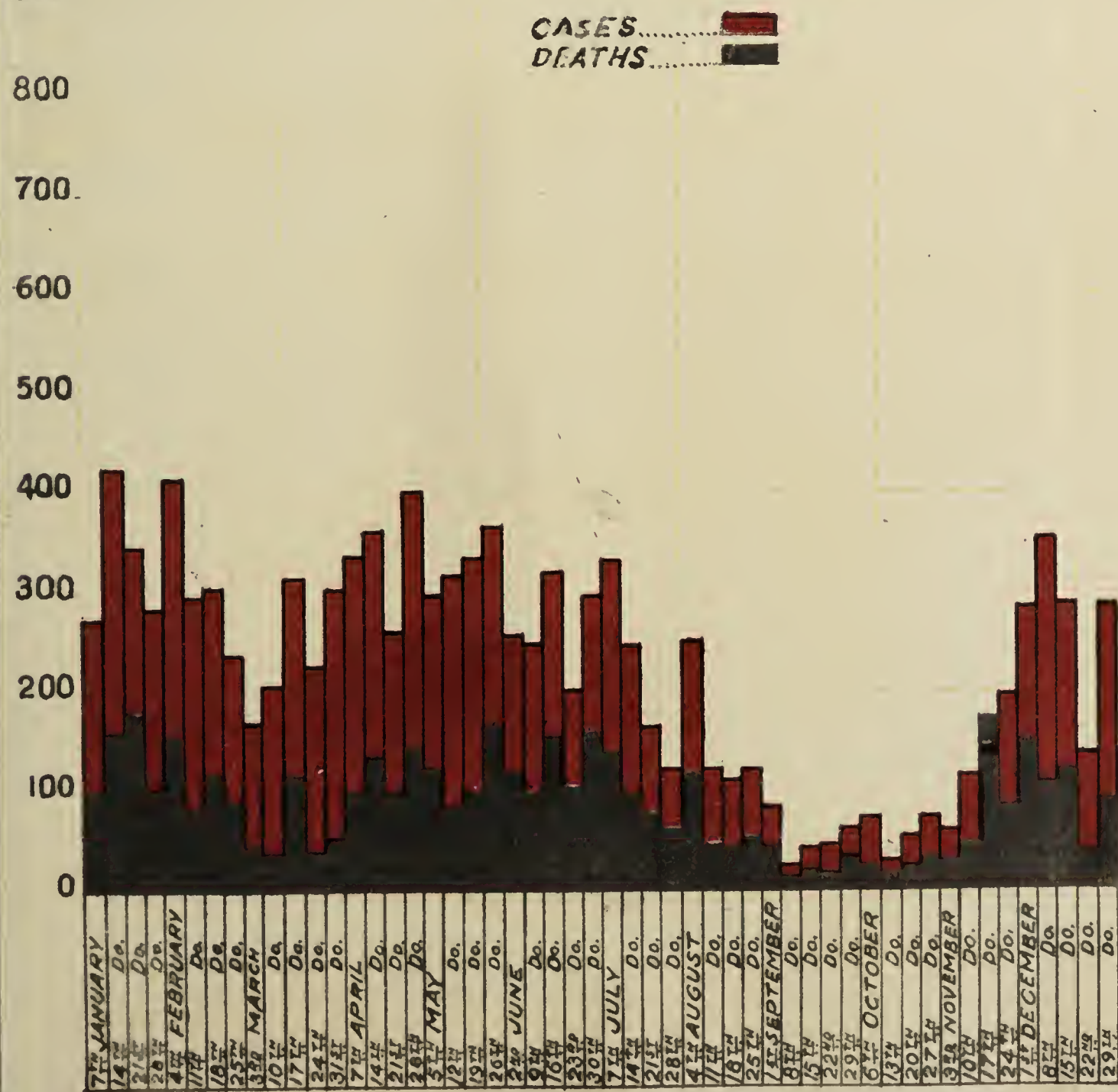


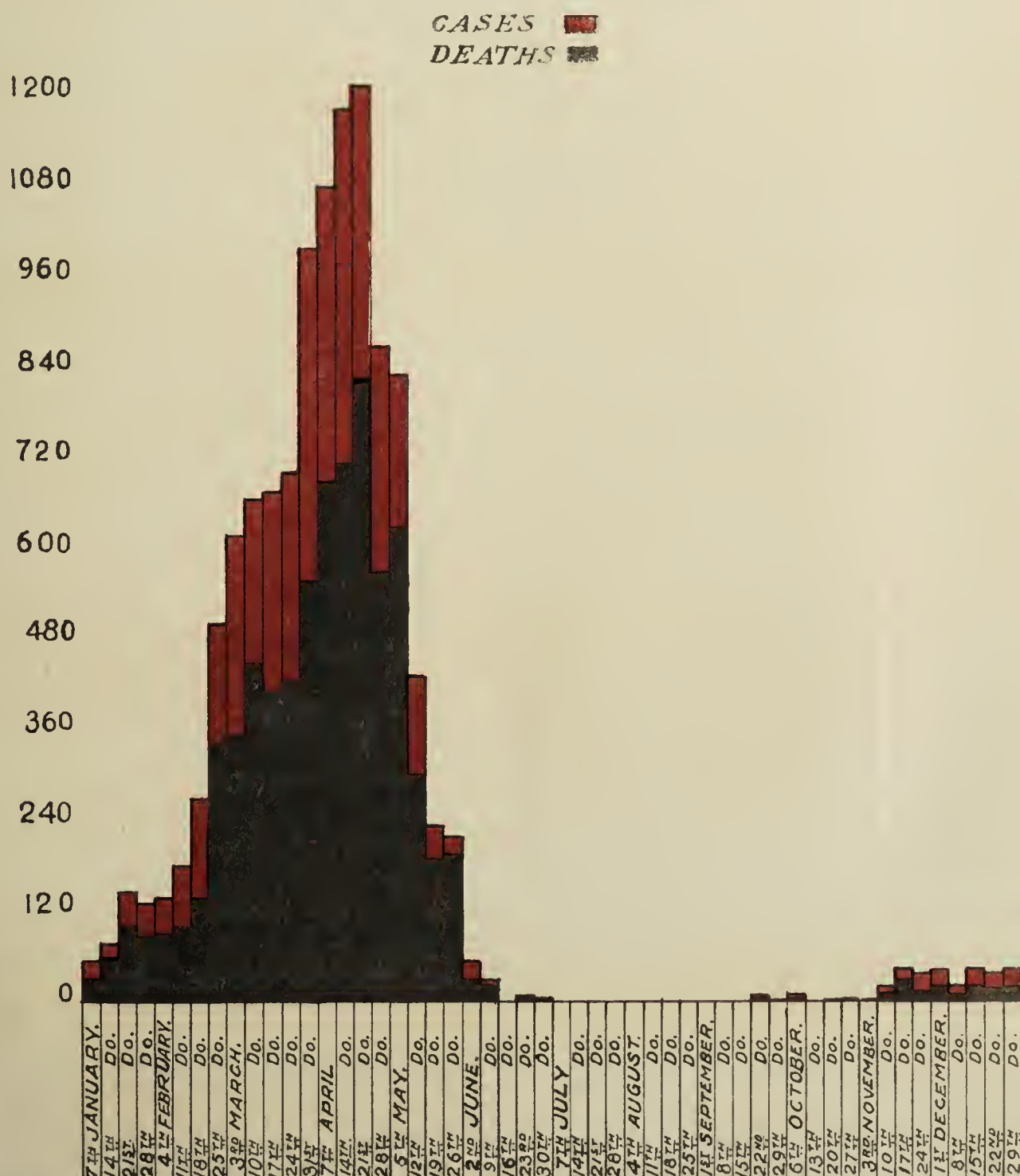
DIAGRAM SHOWING TOTAL NUMBER OF CASES AND DEATHS
FROM SMALLPOX BY WEEKS IN THE PUNJAB
DURING THE YEAR 1928



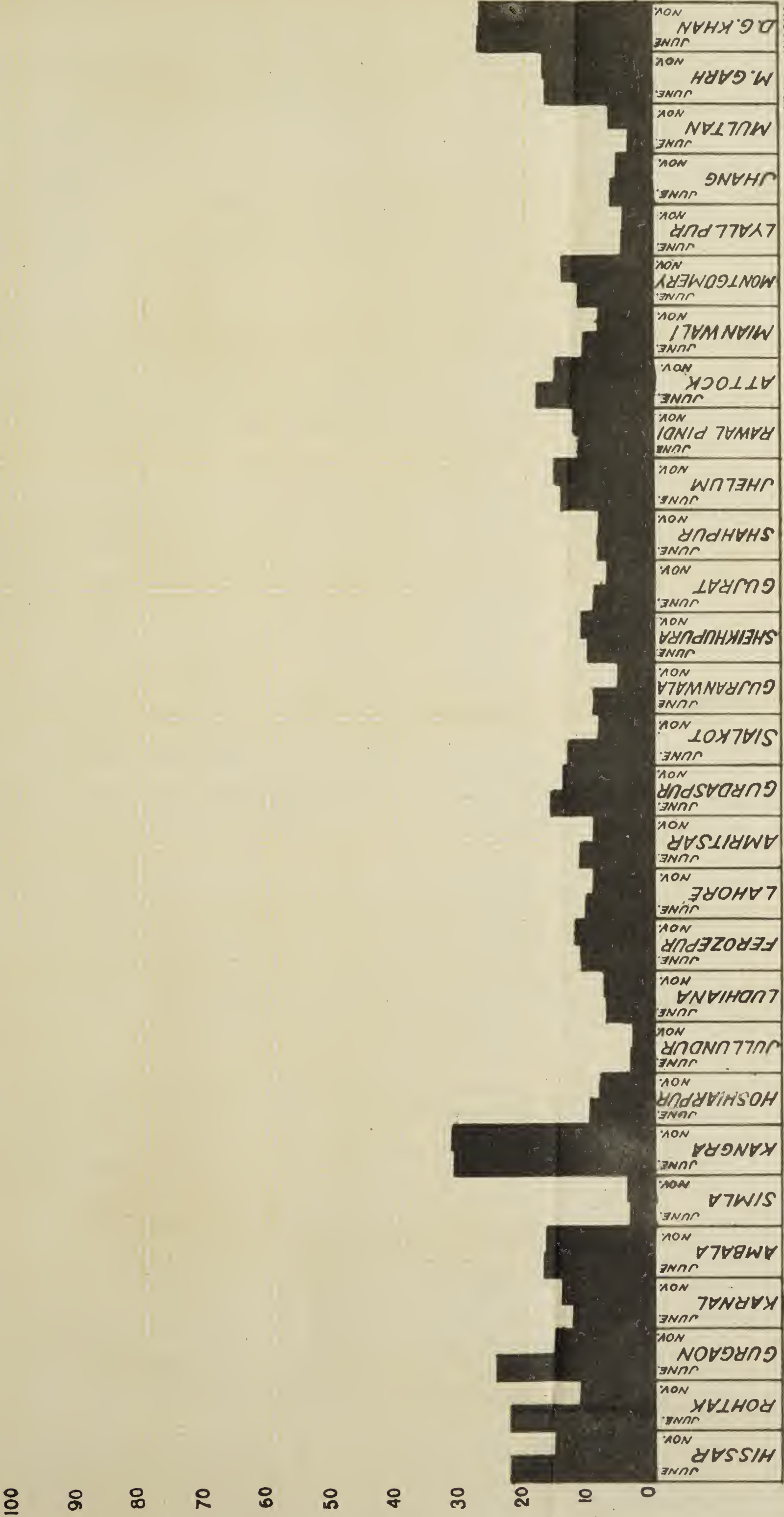
ANNUAL PLAGUE DEATH RATE. PUNJAB 1898-1928



DIAGRAM SHOWING TOTAL NUMBER OF CASES AND DEATHS FROM PLAGUE BY WEEKS IN THE PUNJAB DURING THE YEAR 1928.



SPLEEN RATE OF THE PUNJAB BY DISTRICTS FOR THE YEAR 1928





ANNUAL FORM No. 1.

STATEMENT SHOWING THE BIRTHS REGISTERED IN THE DISTRICTS OF THE PUNJAB
DURING THE YEAR 1928.

1 Number.	2 DISTRICTS.	3 POPULATION ACCORDING TO CENSUS OF 1921.*			4 NUMBER OF BIRTHS REGISTERED.			5 RATIO OF BIRTHS PER 1,000 OF POPULATION.			6 Number of males born to every 100 females born.	7 Excess of births over deaths per 1,000 of population.	8 Excess of deaths over births per 1,000 of population.	9 MEAN RATIO OF BIRTHS PER 1,000 DURING PREVIOUS FIVE YEARS.			10 Number.
		Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	12	13	14	Males.	Females.	Total.	18
		3	4	5	6	7	8	9	10	11				15	16	17	
	AMBALA DIVISION.																
1	Hissar ...	435,562	381,248	816,810	20,548	18,459	39,007	25.2	22.6	47.8	111.3	22.2	...	22.1	19.8	41.9	1
2	Rohtak ...	417,379	354,893	772,272	18,749	17,001	35,750	24.3	22.0	46.3	110.3	23.0	...	21.7	19.7	41.4	2
3	Gurgaon ...	367,800	314,203	682,003	17,118	15,863	32,976	25.1	23.3	48.4	107.9	17.9	...	24.6	22.0	46.6	3
4	Karnal ...	453,637	375,089	828,726	19,281	17,290	36,571	23.3	20.9	44.1	111.5	21.8	...	20.7	18.6	39.3	4
5	Ambala ...	360,967	280,942	641,909	15,698	14,152	29,850	24.5	22.0	46.5	110.9	19.2	...	20.9	18.6	39.5	5
6	Simla ... JULLUNDUR DIVISION.	27,599	13,338	40,937	576	489	1,065	14.1	11.9	26.0	117.8	1.5	...	12.8	12.1	24.9	6
7	Kangra ...	393,121	371,626	764,747	14,977	14,308	29,285	19.6	18.7	38.3	104.7	4.6	...	18.9	17.6	33.5	7
8	Hoshiarpur	498,662	428,757	927,419	22,906	20,306	43,212	24.7	21.9	46.6	112.8	17.7	...	23.1	20.4	43.5	8
9	Jullundur	450,045	363,480	813,525	20,971	19,566	40,537	25.8	24.1	49.8	107.2	24.5	...	23.7	21.9	45.6	9
10	Ludhiana ...	318,845	248,777	567,622	14,490	13,579	28,069	25.5	23.9	49.5	106.7	24.1	...	23.1	21.5	44.6	10
11	Ferozepore LAHORE DIVISION.	598,760	480,547	1,079,307	24,660	21,679	46,339	22.8	20.1	42.9	113.8	20.7	...	20.3	17.4	37.7	11
12	Lahore ...	636,596	480,134	1,116,730	26,738	23,802	50,540	23.9	21.3	45.3	112.3	19.8	...	20.0	17.8	37.8	12
13	Amritsar ...	518,500	409,898	928,398	25,419	23,138	48,557	27.4	24.9	52.3	109.9	23.1	...	24.1	22.1	46.1	13
14	Gurdaspur	467,576	380,238	847,814	22,273	20,635	42,908	26.3	24.3	50.6	107.9	20.9	...	23.4	21.6	45.0	14
15	Sialkot ...	472,231	396,703	868,934	21,750	20,270	42,020	25.0	23.3	48.4	107.3	21.1	...	22.4	20.3	42.7	15
16	Gujranwala	348,695	274,886	623,581	16,555	14,949	31,504	26.5	24.0	50.5	110.7	25.7	...	22.9	20.6	43.5	16
17	Sheikhpura RAVAL- PINDI DIVISION.	351,259	277,163	628,422	16,005	13,728	29,733	25.5	21.8	47.3	116.6	26.2	...	20.1	17.6	37.7	17
18	Gujrat ...	438,550	385,496	824,046	18,257	16,268	34,525	22.2	19.7	41.9	112.2	20.1	...	20.6	18.4	39.0	18
19	Shahpur ...	392,086	327,832	719,918	17,105	15,267	32,372	23.8	21.2	45.0	112.0	22.2	...	20.8	18.4	39.2	19
20	Jhelum ...	240,464	235,104	475,568	10,267	9,321	19,588	21.6	19.6	41.2	110.1	16.8	...	20.5	18.0	38.5	20
21	Rawalpindi	292,317	248,376	540,693	12,093	10,772	22,865	22.4	19.9	42.3	112.3	18.0	...	20.5	18.6	39.1	21
22	Attock ...	232,028	246,001	508,029	11,470	10,081	21,551	22.6	19.8	42.4	113.8	19.0	...	20.4	17.4	37.7	22
23	Mianwali ... MULTAN DIVISION.	190,021	168,184	358,205	9,401	8,536	17,987	26.2	24.0	50.2	109.5	24.4	...	23.7	21.0	44.7	23
24	Montgomery	393,372	320,414	713,786	17,804	15,357	33,161	24.9	21.5	46.5	115.9	22.6	...	24.4	20.9	45.2	24
25	Lyalpur ...	522,707	413,235	935,942	26,748	24,482	51,230	28.6	26.2	54.7	109.3	32.2	...	25.4	23.1	48.5	25
26	Jhang ...	305,483	265,076	570,559	14,455	12,972	27,427	25.3	22.7	48.1	111.4	27.2	...	23.5	20.7	44.1	26
27	Multan ...	484,581	399,593	884,174	22,530	19,233	41,763	25.5	21.8	47.2	117.1	25.8	...	23.1	19.8	42.9	27
28	Muzaffargarh	308,605	259,873	568,478	11,792	9,836	21,628	20.7	17.3	38.0	119.9	18.2	...	18.5	15.5	34.1	28
29	D. G. Khan	257,386	211,666	469,052	9,766	8,144	17,910	20.8	17.4	38.2	119.9	20.7	...	18.3	15.2	33.6	29
	Total ...	11,204,834	9,312,772	20,517,606	500,397	449,533	9,49,930	24.4	21.9	46.3	111.3	21.6	...	21.9	19.5	41.4	

*Excluding population of Military cantonments.

STATEMENT OF BIRTHS AND DEATHS REGISTERED IN EA

1	2	3	4	5			6		7		
Number.	DISTRICTS.	Area in square miles.	Average population per square mile.	POPULATION (CENSUS 1921).			BIRTHS.		NUMBER OF DEATHS REGISTERED.		
				Male.	Females.	Total.	Total number.	Birth-rate per 1,000 of population.	Males.	Females.	Total.
1	2	3	4	5	6	7	8	9	10	11	12
	AMBALA DIVISION.										
1	Hissar	5,213	157	435,562	381,248	816,810	39,037	47·8	11,451	9,468	20,919
2	Rohtak	2,919	265	417,379	354,893	772,272	35,750	46·3	9,795	8,217	18,012
3	Gurgaon	2,263	301	367,800	314,203	682,003	32,973	48·4	11,146	9,660	20,806
4	Karnal	3,125	265	453,637	375,089	828,726	36,571	44·1	9,954	8,482	18,436
5	Ambala	1,882	341	360,937	280,942	641,909	29,850	46·5	9,213	8,322	17,535
6	Simla	101	405	27,599	13,333	40,937	1,065	26·0	559	442	1,001
	JULLUNDUR DIVISION.										
7	Kangra	9,978	77	393,121	371,626	764,747	29,285	38·3	13,394	12,393	25,787
8	Hoshiarpur	2,247	413	498,662	428,757	927,419	43,212	46·6	14,144	12,697	26,841
9	Jullundur	1,431	563	450,045	363,480	813,525	40,537	49·8	10,632	9,984	20,616
10	Ludhiana	1,452	391	318,845	248,777	567,622	28,069	49·5	7,461	6,950	14,411
11	Ferozepore	4,286	252	598,760	480,547	1,079,307	46,339	42·9	12,994	10,981	23,975
	LAHORE DIVISION.										
12	Lahore	2,691	415	636,596	480,134	1,116,730	50,550	45·3	15,276	13,142	28,418
13	Amritsar	1,593	583	518,500	419,898	938,398	48,557	52·3	14,284	12,776	27,060
14	Gurdaspur	1,889	449	467,576	350,238	817,814	42,908	50·6	13,363	11,850	25,213
15	Sialkot	1,203	721	472,231	396,703	868,934	42,020	48·4	11,162	9,959	21,121
16	Gujranwala	2,309	270	348,695	274,886	623,581	31,504	50·5	8,458	6,992	15,450
17	Sheikhpura	3,193	197	351,259	277,163	628,422	29,733	47·3	7,313	5,945	13,258
	RAWALPINDI DIVISION.										
18	Gujrat	2,563	322	438,550	385,496	824,046	34,525	41·9	9,545	8,173	17,718
19	Shahpur	4,476	161	892,086	827,832	1,719,918	32,372	45·0	8,742	7,659	16,401
20	Jhelum	2,773	172	240,464	235,104	475,568	19,588	41·2	6,183	5,399	11,582
21	Rawalpindi	2,023	277	292,317	248,376	540,693	22,865	42·3	6,799	6,353	13,152
22	Attock	4,117	123	262,028	246,001	508,029	21,551	42·4	6,291	5,580	11,871
23	Mianwali	5,395	66	190,021	168,184	358,205	17,987	50·2	4,904	4,345	9,249
	MULTAN DIVISION.										
24	Montgomery	4,623	154	393,372	320,414	713,786	33,161	46·5	9,184	7,899	17,083
25	Lyallpur	2,759	339	522,707	413,235	935,942	51,230	54·7	10,913	10,163	21,076
26	Jhang	3,452	168	305,483	265,076	570,559	27,427	43·1	6,244	5,653	11,897
27	Multan	5,939	149	484,581	399,593	884,174	41,763	47·2	10,157	8,762	18,919
28	Muzaffargarh	6,052	94	308,605	259,873	568,478	21,628	38·0	6,175	5,057	11,232
29	Dera Ghazi Khan	5,325	88	257,386	211,666	469,052	17,910	38·2	4,549	3,646	8,195
	Total	97,280	211	11,204,834	9,312,772	20,517,606	949,930	46·3	270,285	236,949	507,234

NOTE.—Those born dead are not included in this or any other statement.

II.
DISTRICT OF THE PUNJAB DURING THE YEAR 1928.

8		9										10			11	
every 100 deaths of females.	DEATHS PER 1,000 OF POPULATION FROM												MEAN RATIO OF DEATHS PER 1,000 DURING PREVIOUS FIVE YEARS.			Number.
	Cholera.	Small-pox.	Plague.	Fevers.	Dysentery and Diar- rhœa.	Respiratory Diseases.	Injuries.	All other causes	All causes.			Males.	Females.	Total.		
									Males.	Females.	Total.					
13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
20.9	0.61	0.7	0.9	13.4	0.5	2.7	0.2	7.1	26.3	24.8	25.6	33.4	37.3	35.2	1	
19.2	0.1	0.5	0.6	15.0	0.2	1.9	0.3	4.7	23.5	23.2	23.3	46.5	50.0	48.1	2	
15.4	0.1	0.02	0.6	18.2	0.4	2.4	0.5	8.4	30.3	30.7	30.5	36.8	40.4	38.5	3	
17.4	0.02	0.1	0.4	14.3	0.3	1.8	0.2	5.2	21.9	22.6	22.3	45.0	50.0	47.3	4	
10.7	0.2	0.1	2.4	9.2	0.3	9.6		5.6	25.5	29.6	27.3	34.4	38.8	36.3	5	
26.5	...	0.2	...	3.0	0.7		0.02	20.5	20.3	33.1	24.5	16.3	25.2	19.2	6	
08.1	1.9	0.2	...	13.9	4.3	6.6	1.0	5.9	34.1	33.4	33.7	30.3	29.7	30.0	7	
11.4	0.03	1.0	1.7	19.1	0.01	2.7	0.2	4.1	28.4	29.6	28.9	30.7	32.2	31.4	8	
06.5	0.03	0.2	0.2	16.9	0.4	2.5	0.3	4.9	23.6	27.5	25.3	27.9	31.9	29.7	9	
07.4	0.01	0.1	0.04	13.9	0.4	2.7	0.2	8.1	23.4	27.9	25.4	30.3	36.1	32.8	10	
118.3	0.01	0.2	0.01	12.5	0.2	2.2	0.3	6.8	21.7	22.9	22.2	28.9	31.0	29.9	11	
16.2	0.03	0.9	0.5	13.2	0.7	3.5	0.5	6.1	24.0	27.4	25.5	31.3	37.2	33.8	12	
11.8	0.04	0.4	0.1	18.0	0.3	4.2	0.4	5.8	27.6	31.2	29.2	35.9	41.8	38.5	13	
112.8	0.01	0.3	2.3	13.6	0.6	4.3	0.2	8.5	28.6	31.2	29.7	34.1	38.2	35.9	14	
112.1	0.01	0.6	0.4	15.4	0.3	5	0.2	3.8	23.6	25.1	24.3	41.1	48.4	44.4	15	
121.0	0.02	1.2	0.2	17.1	0.2	1.3	0.6	3.9	24.3	25.4	24.8	37.3	43.6	40.1	16	
123.0	0.04	0.8	0.04	15.1	0.1	0.7	0.4	4.0	20.8	21.5	21.1	29.1	32.8	30.8	17	
116.8	0.01	1.0	0.004	14.5	0.2	2.5	0.3	3.0	21.8	21.2	21.5	38.3	42.1	40.1	18	
111.1	0.01	0.6	...	15.4	0.4	2.2	0.4	3.8	22.3	23.4	22.8	25.6	27.0	26.2	19	
114.5	0.1	0.2	0.03	16.7	0.3	2.5	0.5	4.2	25.7	23.0	24.4	31.4	30.6	31.1	20	
107.0	...	0.2	...	15.4	3.2	2.8	0.5	2.3	23.3	25.6	24.3	27.4	29.9	28.6	21	
112.7	...	0.2	0.001	18.2	0.1	1.4	0.4	3.1	24.0	22.7	23.4	27.9	26.4	27.2	22	
112.9	0.02	0.03	...	20.9	0.1	1.1	0.4	3.3	25.8	25.8	25.8	28.0	28.3	28.1	23	
116.3	0.2	0.6	...	18.4	0.1	0.5	0.4	3.7	23.4	24.7	23.9	26.4	28.0	27.1	24	
107.4	0.004	0.6		16.3	0.1	0.5	0.3	4.9	20.9	24.6	22.5	25.9	30.1	27.7	25	
110.5	0.002	0.1	...	13.7	0.3	1.3	0.4	5.0	20.4	21.3	20.9	28.0	28.2	28.1	26	
115.9	0.002	0.1	0.02	15.9	0.3	1.3	0.4	3.4	21.0	21.9	21.4	26.8	28.6	27.6	27	
122.1	0.02	0.1	0.002	17.5	0.1	0.3	0.4	1.4	20.0	19.5	19.8	29.5	29.2	29.3	28	
124.8	0.004	0.1	...	14.9	0.3	0.5	0.3	1.5	17.7	17.2	17.5	27.5	26.7	27.1	29	
114.1	0.1	0.4	0.4	15.4	0.5	2.6	0.4	5.0	24.1	25.4	24.7	32.2	35.4	33.7		

ANNUAL FORM No. III.

DEATHS REGISTERED IN THE DISTRICTS OF THE PUNJAB DURING EACH MONTH OF THE YEAR 1929.

1	2	3												4
Number.	DISTRICTS.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total deaths registered during the year.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	AMBALA DIVISION.													
1	Hissar ..	1,592	1,656	2,207	2,400	2,267	2,141	1,538	1,327	1,221	1,413	1,475	1,687	20,911
2	Rohtak ...	1,432	1,236	1,689	1,958	1,992	2,085	1,352	1,162	1,000	1,232	1,326	1,548	18,011
3	Gurgaon ..	1,914	1,671	1,966	2,214	2,478	2,427	1,460	1,186	1,228	1,366	1,342	1,514	20,801
4	Karnal ..	1,550	1,194	1,584	1,737	1,875	2,089	1,617	1,334	1,276	1,256	1,215	1,708	18,431
5	Ambala ..	1,355	1,268	1,880	1,965	1,832	1,856	1,247	1,174	1,089	1,089	1,195	1,485	17,531
6	Simla ...	38	49	58	77	106	113	98	81	114	86	107	74	1,001
	JULLUNDUR DIVISION.													
7	Kangra ...	1,751	1,684	2,150	2,004	2,422	3,042	2,304	2,035	2,232	2,171	1,924	2,068	25,781
8	Hoshiarpur ...	1,997	1,884	2,666	3,137	2,927	2,190	1,957	1,917	1,851	1,987	2,054	2,274	26,841
9	Jullundur ..	1,581	1,440	1,767	1,717	1,897	1,576	1,646	1,958	1,728	1,877	1,702	1,727	20,611
10	Ludhiana ...	1,104	1,010	1,142	1,100	1,413	1,412	1,236	1,163	1,048	1,210	1,269	1,304	14,411
11	Ferozepore ...	1,704	1,778	2,085	2,088	1,976	1,985	1,786	1,954	1,896	1,915	2,365	2,443	23,971
	LAHORE DIVISION.													
12	Lahore ...	2,296	2,120	2,194	2,463	2,832	2,466	2,351	2,504	2,117	2,217	2,418	2,439	24,411
13	Amritsar ...	2,200	2,014	2,141	2,076	2,491	2,219	2,223	2,385	2,464	2,496	2,121	2,226	27,061
14	Gurdaspur ...	2,126	1,856	2,330	2,548	2,594	1,892	1,870	1,867	2,016	2,098	1,976	2,140	25,211
15	Sialkot ...	1,950	1,723	1,813	1,593	1,807	1,585	1,630	1,710	2,003	1,817	1,649	1,838	21,121
16	Gujranwala ..	1,511	1,266	1,345	1,177	1,454	1,311	1,139	1,326	1,125	1,166	1,254	1,369	15,451
17	Sheikhpura ...	1,313	987	1,068	991	1,238	1,100	1,062	1,102	1,097	1,046	1,021	1,233	13,251
	RAWALPINDI DIVISION.													
18	Gujrat ...	1,657	1,581	1,446	1,512	1,397	1,372	1,404	1,319	1,331	1,449	1,492	1,718	17,711
19	Shahpur ..	1,453	1,341	1,266	1,246	1,297	1,308	1,292	1,170	1,190	1,217	1,537	2,084	16,401
20	Jhelum ...	1,099	1,096	986	879	842	793	848	847	879	991	1,080	1,242	11,581
21	Rawalpindi ...	1,329	1,246	1,110	971	1,036	961	1,128	987	842	1,077	1,270	1,295	13,151
22	Attock ...	1,413	1,265	1,121	860	797	816	888	828	748	944	988	1,205	11,871
23	Mianwali ...	926	833	856	665	741	657	645	669	707	749	831	940	9,241
	MULTAN DIVISION.													
24	Montgomery ...	1,675	1,408	1,043	1,105	1,394	1,496	1,265	1,108	1,226	1,345	1,662	2,356	17,081
25	Lyallpur ...	1,689	1,512	1,647	1,691	1,920	1,982	1,687	1,944	1,895	1,774	1,597	1,738	21,071
26	Jhang ...	1,052	1,139	984	946	1,000	913	920	976	831	912	976	1,168	11,891
27	Multan ...	1,880	1,689	1,609	1,629	1,856	1,599	1,235	1,330	1,177	1,361	1,631	1,923	18,911
28	Muzaffargarh ..	1,113	1,095	1,023	936	1,027	804	754	732	673	902	971	1,202	11,231
29	Dera Ghazi Khan	805	771	821	710	674	482	554	556	516	722	737	797	8,191
	Total for the Province.	43,505	39,812	43,996	44,473	4,583	44,762	39,137	38,679	37,570	39,885	41,185	46,645	507,234
	Ratio of deaths per 1,000 in each month.	2.12	1.94	2.14	2.17	2.32	2.18	1.91	1.89	1.83	1.94	2.01	2.27	24.72

ANNUAL FORM No. IV.

DEATHS REGISTERED BY SEXES AND CLASSES ACCORDING TO SPECIFIED AGE PERIODS IN THE DISTRICTS OF THE PUNJAB DURING THE YEAR 1928.

1	2	3									
Number.	Districts.	POPULATION ACCORDING TO THE CENSUS OF 1921.									
		Muhammadans.		Hindus.		Indian Christians.		Other Classes.		Total.	
		Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
1	2	3	4	5	6	7	8	9	10	11	12
1	Hissar ..	112,489	103,054	322,126	277,714	486	431	61	49	435,562	384,248
2	Rehtak ..	65,488	59,547	346,668	290,538	5,188	4,798	37	10	417,379	354,893
3	Gurgaon ..	115,923	100,927	251,112	212,648	609	564	86	64	367,800	314,203
4	Karnal ..	126,916	108,702	324,923	264,803	1,784	1,568	14	16	453,637	375,089
5	Ambala ..	103,123	86,972	252,231	192,265	1,637	1,425	976	280	360,967	280,942
6	Simla ..	4,611	1,244	21,434	10,205	487	329	1,068	1,560	27,599	13,338
7	Kangra ..	31,025	17,210	370,380	352,719	142	142	1,574	1,525	393,121	371,626
8	Hoshiarpur ..	155,165	134,133	341,419	292,957	1,982	1,657	96	10	493,662	428,757
9	Jullundur ..	197,011	165,932	250,831	196,055	1,850	1,455	353	38	450,045	363,480
10	Ludhiana ..	106,764	86,197	211,208	161,811	853	729	20	30	318,845	248,777
11	Ferozepore ..	259,451	216,039	336,222	262,804	2,034	1,526	1,053	178	598,760	480,547
12	Lahore ..	357,101	285,083	253,601	174,908	22,458	18,939	3,429	1,204	636,596	480,134
13	Amritsar ..	232,747	190,653	278,793	213,423	6,590	5,636	370	186	518,500	409,898
14	Gurdaspur ..	231,410	190,761	218,188	174,712	17,908	14,636	70	130	467,576	380,238
15	Sialkot ..	288,815	216,325	153,436	125,740	28,670	24,491	1,310	147	472,231	396,703
16	Gujranwala ..	246,243	196,904	87,253	65,869	15,141	12,050	58	63	348,695	274,886
17	Sheikhupura ..	224,231	181,095	110,110	82,532	16,660	13,358	258	178	351,259	277,163
18	Gujrat ..	377,925	331,759	59,348	52,641	1,242	1,046	35	50	438,550	385,496
19	Shahpur ..	323,746	272,354	62,081	50,465	6,209	4,977	50	36	392,086	327,832
20	Jhelum ..	212,844	209,447	27,415	25,528	199	125	6	4	240,464	235,104
21	Rawalpindi ..	241,100	215,743	45,536	31,035	1,661	928	4,020	670	292,317	248,376
22	Attock ..	238,983	224,507	22,741	21,411	115	56	189	27	262,028	246,001
23	Mianwali ..	162,581	146,295	27,153	21,807	123	28	164	54	190,021	168,184
24	Montgomery ..	281,044	232,011	106,548	83,775	5,737	4,600	43	28	393,372	320,414
25	Lyallpur ..	308,897	254,089	190,929	140,499	22,830	18,600	51	47	522,707	413,235
26	Jhang ..	256,594	218,794	48,634	46,088	249	189	6	5	305,483	265,076
27	Multan ..	396,651	332,194	84,403	65,264	2,341	1,999	1,181	136	484,581	399,593
28	Muzaffargarh ..	268,374	224,995	39,951	34,802	72	68	208	8	308,605	259,873
29	Dera Ghazi Khan ..	226,773	184,658	30,585	26,989	19	15	9	4	257,386	211,666
	Total ..	6,147,435	5,217,624	4,875,328	3,952,047	165,276	136,364	16,795	6,737	11,204,834	9,312,772
	Population according to Census of 1921.										

No. IV.

IN THE DISRTICTS OF THE PUNJAB DURING THE YEAR, 1928.

4																
UNDER ONE YEAR.																
NOT EXCEEDING ONE MONTH.								OVER ONE MONTH AND NOT EXCEEDING SIX MONTHS.								Number.
Muhammadans.		Hindus.		Indian Christians.		Other Classes.		Muhammadans.		Hindus		Indian Christians.		Other Classes.		
Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	
13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	1
498	401	818	600		...		...	248	217	473	404	...	...	...	...	1
145	135	1,114	792				...	125	119	761	643		1		...	2
260	235	505	481		...			340	292	672	593		...	...	...	3
253	168	1,103	937		...	...	...	241	282	784	564		...		...	4
299	263	936	830			...		186	159	559	514	...	1		...	5
7	4	83	41	1	2			2	3	56	39	...	1		...	6
113	101	1,295	1,282				...	103	102	769	861	...		...		7
663	571	1,347	1,007	6	2	...		435	305	941	803	4	1		...	8
1,024	771	1,151	1,300					390	335	541	459	...		...		9
301	209	808	745	2	1			202	202	644	549		1		...	10
1,043	672	1,106	1,025	3	2	...		538	520	705	604		1		1	11
1,475	1,337	681	369	7	5		...	930	911	597	327	9	11		...	12
1,117	919	1,167	960	18	16	32	29	607	568	703	610	14	11	23	18	13
1,086	995	1,003	721	52	46	...		514	426	621	520	15	12		...	14
771	642	400	361	100	93	...	...	711	633	396	352	95	69		...	15
778	676	173	132	86	38	2	1	651	581	101	99	58	29	1	1	16
700	606	361	197	69	50	20	8	520	445	170	116	41	33	17	11	17
926	799	174	123	2	6	1	2	682	572	113	70				...	18
1,122	881	159	127	25	10	12	7	685	514	92	109	7	4	8	5	19
732	672	79	49					413	354	53	42	1		...	...	20
615	493	71	63	6	1	1		499	427	47	47	1		...	...	21
855	756	35	22		...	...	...	356	353	29	20		...	...	...	22
513	433	16	22			...	...	139	123	20	14		...		...	23
1,203	869	518	492	4	2	2	7	562	498	208	172	12	10	4		24
1,463	1,286	712	640	9	30			651	561	320	288	40	36		...	25
1,246	1,152	112	54					569	512	92	38				...	26
1,457	1,183	204	214	7	6	14	8	797	711	235	256	14	9	8	4	27
987	595	143	105			...	...	543	523	68	71				...	28
484	383	109	82			4	3	546	407	95	71			2	3	29
22,161	18,207	16,402	13,778	478	360	88	66	13,223	11,655	10,920	9,255	311	230	63	43	

Not available.

DEATH REGISTERED BY SEXES AND CLASSES ACCORDING TO SPECIFIED AGE

Number.	DISTRICTS.	4													
		UNDER ONE YEAR—CONCLUDED.													
		OVER SIX MONTHS AND UNDER TWELVE MONTHS.								TOTAL UNDER ONE					
		Muhamma- dans.		Hindus.		Indian Christians.		Other classes.		Muhammadans.		Hindus.		Indian Christians.	
		Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
1	2	29	30	31	32	33	34	35	36	37	38	39	40	41	42
1	Hissar ..	191	187	349	339				...	937	805	1,640	1,343	...	..
2	Rohtak ...	109	91	813	711	..	...	..	..	379	345	2,688	2,146	1	1
3	Gurgaon ..	335	282	684	564	..	..	..	..	935	809	1,865	1,638	..	..
4	Karnal ..	150	193	602	386	..	...	...	...	644	643	2,494	1,887	...	..
5	Ambala ..	156	151	573	539	..	...	...	...	641	578	2,068	1,888	..	1
6	Simla ..	4	3	36	32	1	..	..	...	13	10	175	112	2	3
7	Kangra ...	96	74	606	747	..	...	...	...	317	277	2,670	2,890	..	..
8	Hoshiarpur ...	214	217	838	727	2	—	..	...	1,312	1,093	3,126	2,537	12	3
9	Jullundur ..	348	362	595	505	..	..	..	...	1,762	1,468	2,287	2,264	..	..
10	Ludhiana ..	399	298	361	422	...	2	..	...	902	709	1,813	1,716	2	4
11	Ferozepore ...	626	512	796	730	...	1	1	...	2,197	1,704	2,607	2,359	3	4
12	Lahore ...	629	637	543	315	11	9	..	...	3,034	2,885	1,821	1,011	27	26
13	Amritsar ...	618	515	604	550	17	15	33	30	2,342	2,002	2,479	2,120	49	42
14	Gurdaspur ..	468	413	415	422	21	21	...	...	2,068	1,834	2,044	1,663	88	79
15	Sialkot ...	608	603	387	288	55	42	1	...	2,090	1,878	1,183	1,001	250	204
16	Gujranwala ...	627	534	85	86	53	24	1	...	2,056	1,791	359	317	197	91
17	Sheikhpura ...	390	228	110	184	44	36	12	8	1,610	1,271	641	497	154	119
18	Gujrat ...	637	614	85	83	4	2	...	...	2,245	1,985	572	276	6	8
19	Shahpur ...	579	489	98	92	13	9	7	6	2,386	1,884	349	338	45	23
20	Jhelum ...	300	191	27	31	...	1	...	..	1,445	1,217	159	122	1	1
21	Rawalpindi .	697	629	84	77	..	...	...	...	1,811	1,549	202	192	7	1
22	Attock ...	233	159	31	21	...	...	...	..	1,444	1,268	95	63	...	...
23	Mianwali ...	146	181	7	25	...	...	..	...	858	737	43	61	...	...
24	Montgomery ...	510	428	188	182	2	1	1	...	2,275	1,795	914	846	18	13
25	Lyallpur ...	1,109	1,133	544	560	68	70	...	1	3,233	2,980	1,576	1,488	197	186
26	Jhang ...	245	265	225	149	...	...	...	...	2,060	1,929	429	241	...	...
27	Multan ...	829	701	57	55	6	5	13	9	3,083	2,595	546	525	27	20
28	Muzaffargarh ...	435	285	49	26	..	..	...	...	1,963	1,403	265	202	...	...
29	Dera Ghazi Khan ...	296	231	53	44	...	...	1	1	1,324	1,021	257	197	...	...
	Total ...	11,984	10,606	9,845	8,892	297	238	70	55	47,368	40,468	37,167	31,925	1,086	828
	Population according to Census of 1921.	Not available.								240,139	232,641	176,259	168,581	7,514	7,241
	Ratio per 1,000 living for the Province.									197.25	173.95	210.87	189.37	144.53	114.35

No. IV—CONTINUED,

PERIODS IN THE DISTRICTS OF THE PUNJAB DURING THE YEAR, 1928.

		5								6				1
										FIVE YEARS AND UNDER TEN YEARS.				
FAB.		ONE YEAR AND UNDER FIVE YEARS.												
Other Classes.		Muhammadans.		Hindus.		Indian Christians.		Other Classes.		Muhammadans.		Hindus.		
Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Serial No.
43	44	45	46	47	48	49	50	51	52	53	54	55	56	1
..	..	291	250	424	390	..	..	..	..	221	199	292	227	1
..	..	239	221	1,125	847	1	..	..	..	151	117	618	484	2
..	..	277	263	560	547	1	..	..	..	315	298	618	595	3
..	..	247	233	945	766	..	..	..	..	140	147	333	293	4
..	..	321	305	884	808	1	..	..	..	129	135	206	234	5
..	..	9	11	63	51	2	1	..	..	4	6	13	4	6
..	..	60	49	822	771	..	1	..	..	59	62	814	720	7
..	..	590	642	1,700	1,481	5	3	..	..	222	225	375	395	8
..	..	629	744	919	948	..	..	..	..	149	112	182	197	9
..	..	200	251	449	332	1	2	..	..	113	199	247	143	10
1	1	76	68	82	72	2	..	..	1	71	74	78	74	11
..	..	1,743	1,793	1,293	991	67	53	..	..	551	487	142	132	12
88	77	657	561	880	743	7	8	25	22	313	304	333	369	13
..	..	986	1,127	949	822	97	93	..	..	276	292	294	335	14
1	..	839	778	512	497	74	74	..	..	191	275	78	69	15
4	2	1,126	964	200	200	77	59	2	1	304	224	103	69	16
49	27	1,295	990	237	324	45	31	14	11	300	263	99	66	17
1	2	1,621	1,547	237	193	3	1	2	3	450	417	49	48	18
27	18	1,419	1,357	272	224	26	17	9	11	413	429	61	54	19
..	..	790	783	89	69	..	2	..	..	252	251	24	34	20
1	..	1,019	945	111	113	5	2	..	..	266	259	62	69	21
..	..	1,011	973	49	24	..	..	1	..	351	333	23	20	22
..	..	450	387	24	24	..	..	..	..	417	376	33	32	23
7	7	1,542	1,261	530	550	20	16	12	9	367	352	172	156	24
..	1	1,149	966	549	511	70	69	..	..	326	33	141	149	25
..	..	703	738	153	116	..	..	..	..	180	91	101	79	26
35	21	1,019	811	506	496	9	7	18	9	156	172	205	190	27
..	..	626	533	69	61	..	..	..	..	291	377	54	49	28
7	7	615	480	101	79	..	..	3	1	179	159	23	17	29
221	163	21,554	20,036	14,734	13,080	513	444	86	68	7,162	7,077	5,873	5,338	
52	20	587,475	568,315	430,242	408,415	18,176	17,236	167	98	950,073	831,333	633,426	592,470	
?	?	36.69	35.38	34.25	32.03	28.22	25.76	514.97	693.88	7.54	8.51	8.59	9.01	

DEATHS REGISTERED BY SEXES AND CLASSES ACCORDING TO SPECIFIED A

1	2	6				7							
Number.	DISTRICTS.	FIVE YEARS AND UNDER TEN YEARS—CONCLD.				TEN YEARS AND UNDER FIFTEEN YEARS.							
		Indian Christians.		Other Classes.		Muhammadans.		Hindus.		Indian Christians.		Other Cla.	
		Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
1	2	57	58	59	60	61	62	63	64	65	66	67	
1	Hissar ...	...	...	...	...	198	181	285	247	...	...	...	
2	Rohtak ...	...	1	...	...	165	88	442	398	1	..	...	
3	Gurgaon ...	1	...	...	..	357	320	697	637	...	...	...	
4	Karnal ...	...	...	...	...	177	143	358	285	...	...	...	
5	Ambala ...	...	...	...	...	95	142	190	230	...	...	...	
6	Simla ...	1	2	..	...	2	8	6	11	2	1	1	
7	Kangra ...	...	...	...	...	46	43	779	876	1	...	...	
8	Hoshiarpur ...	2	4	...	.	126	197	273	295	4	1	...	
9	Jullundur ...	...	...	...	...	104	164	101	129	...	..	...	
10	Ludhiana ..	1	...	...	...	200	101	100	169	3	1	2	
11	Ferozepore ...	...	1	2	...	78	76	79	86	2	1	1	
12	Lahore ...	47	48	...	...	322	314	142	199	43	41	...	
13	Amritsar ...	5	6	12	9	313	306	387	362	2	3	8	
14	Gurdaspur ...	23	21	...	...	223	352	239	189	13	24	...	
15	Sialkot ...	24	20	...	...	240	240	7	58	23	20	...	
16	Gujranwala ..	29	18	1	...	305	273	111	74	33	15	1	
17	Sheikhpura ...	21	25	11	2	107	146	97	46	37	26	9	
18	Gujrat ...	2	...	..	1	276	259	32	38	3	...	1	
19	Shahpur ...	5	4	2	3	221	234	48	39	7	3	5	
20	Jhelum ...	1	...	...	...	157	150	23	17	...	...	...	
21	Rawalpindi ...	1	3	...	...	249	236	40	51	...	...	...	
22	Attock ...	...	...	...	...	201	197	25	20	1	...	...	
23	Mianwal ...	...	...	...	...	366	328	45	40	...	...	...	
24	Montgomery ...	9	8	4	3	172	146	108	98	6	4	4	
25	Lyallpur ...	19	20	...	...	240	250	101	109	14	15	...	
26	Jhang ...	...	...	...	...	134	177	62	45	...	...	...	
27	Multan ...	6	3	12	5	304	301	37	34	6	4	7	
28	Muzaffargarh ...	...	...	...	...	353	319	70	53	...	...	...	
29	Dera Ghazi Khan..	...	...	1	...	135	91	18	18	...	...	...	
Total ..		197	184	45	23	5,866	5,782	4,917	4,873	209	159	39	
Population according to Census of 1921.		28,011	24,222	158	128	770,733	584,428	591,597	438,614	22,692	16,848	177	
Ratio per 1,000 living for the Province.		7.03	7.60	284.81	179.69	7.61	9.89	8.31	11.11	9.21	9.44	220.34	

IV—CONTINUED.

IODS IN THE DISTRICTS OF THE PUNJAB DURING THE YEAR 1928.

8								9								Number.
FIFTEEN YEARS AND UNDER 20 YEARS.								TWENTY YEARS AND UNDER THIRTY YEARS.								
Muhammadans.	Hindus.	Indian Christians.	Other Classes.	Muhammadans.	Hindus.	Indian Christians.	Other Classes.	Muhammadans.	Hindus.	Indian Christians.	Other Classes.	Muhammadans.	Hindus.	Indian Christians.	Other Classes.	
Females.	Males.	Females.	Males.	Females.	Males.	Females.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	
70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	1	
90	172	275	295	...	...	...	...	291	200	354	309	..	...	..	1	
47	105	413	416	...	..	..	...	113	104	528	520	1	1	...	2	
70	333	810	671	..	...	...	...	384	325	771	65	...	...	...	3	
36	181	371	300	...	...	..	..	193	163	686	627	...	1	...	4	
39	123	186	180	...	...	..	...	188	213	382	446	1	...	..	5	
5	10	7	8	1	1	..	..	15	18	42	44	3	...	...	6	
41	38	908	904	...	...	...	...	45	67	1 092	993	2	...	..	7	
06	138	199	315	...	2	...	...	228	309	4 6	785	3	3	..	8	
98	127	105	142	...	..	...	...	177	282	249	274	..	...	...	9	
11	102	204	299	...	1	...	1	1 3	189	297	200	2	..	1	10	
15	113	101	87	2	3	...	...	140	137	165	155	..	1	1	11	
54	388	145	154	43	49	...	...	224	659	366	326	35	35	...	12	
00	328	444	437	1	2	14	13	337	357	449	196	...	2	16	13	
33	248	200	232	15	12	...	...	367	516	303	48	25	51	...	14	
76	237	88	99	28	24	...	...	934	904	535	425	84	85	..	15	
27	315	158	96	40	35	...	2	369	327	151	103	22	40	1	16	
75	69	43	67	42	28	7	3	204	271	129	93	34	22	14	17	
31	195	22	43	1	...	...	...	431	453	42	18	..	1	...	18	
33	195	32	26	2	1	1	2	322	432	71	64	11	7	6	19	
35	149	26	23	...	1	...	...	309	388	27	52	...	...	..	20	
14	224	47	59	1	...	...	..	227	227	56	65	...	...	...	21	
73	135	9	12	...	...	...	...	391	453	29	20	...	...	...	22	
33	353	29	30	...	...	...	...	411	305	35	37	..	...	..	23	
05	134	56	37	9	7	2	2	204	214	86	15	12	8	2	24	
31	213	69	93	10	13	...	...	352	397	149	182	20	24	...	25	
51	143	37	69	...	...	...	...	254	340	21	26	..	...	...	26	
03	291	18	16	...	3	12	5	507	585	53	52	...	2	3	27	
03	382	37	41	..	...	...	...	483	379	51	43	...	...	...	28	
37	76	16	25	...	...	1	...	224	278	22	5	...	...	...	29	
62	5,567	5,055	5,236	195	182	37	28	8,781	9,492	7,677	7,630	285	236	44	28	
02	405,557	436,767	317,417	16,312	11,736	182	133	943,910	833,320	812,778	615,951	33,066	23,019	374	357	
78	13.73	11.57	16.50	11.95	15.51	203.30	210.53	9.30	11.39	9.45	11.86	8.62	12.42	117.05	78.43	

DEATHS REGISTERED BY SEXES AND CLASSES ACCORDING TO SPECIFIED

1	2	10								11			
		THIRTY YEARS AND UNDER FORTY YEARS.								FORTY YEARS AND UN			
		Muhammadans.		Hindus.		Indian Christians		Other Classes.		Muhammadans.		Hindus.	
		Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
1	2	85	86	87	88	89	90	91	92	93	94	95	96
1	Hissar	371	221	462	476	..	..	..	..	335	307	917	..
2	Rohtak	109	107	485	426	1	..	..	..	75	64	511	..
3	Gurgaon	366	307	730	616	..	..	..	..	328	240	661	..
4	Karnal	231	225	614	600	..	..	..	..	214	180	587	..
5	Ambala	191	179	392	364	..	..	..	..	211	167	433	..
6	Simla	3	4	41	37	1	..	..	..	10	4	22	..
7	Kangra	41	88	1,194	1,074	..	1	..	..	69	110	1,321	..
8	Hoshiarpur ..	241	234	516	588	2	2	..	..	287	215	555	..
9	Jullundur ..	176	185	250	265	..	..	..	..	195	164	269	..
10	Ludhiana ..	212	213	315	321	1	..	..	..	206	104	393	..
11	Ferozepore ..	307	306	347	323	1	..	..	..	998	853	1,104	..
12	Lahore	533	453	249	221	41	38	..	..	462	323	314	..
13	Amritsar ..	402	367	412	432	5	3	20	18	393	380	463	..
14	Gurdaspur ..	191	312	394	424	37	13	..	..	412	215	456	..
15	Sialkot	812	627	402	401	71	72	..	..	692	457	302	..
16	Gujranwala ..	357	307	172	126	6	39	1	..	403	242	187	..
17	Sheikhupura ..	133	204	132	101	31	29	9	8	159	89	148	..
18	Gujrat	508	455	51	55	2	..	..	..	494	360	45	..
19	Shahpur	351	425	58	64	9	8	7	3	350	306	53	..
20	Jhelum	402	379	32	44	..	1	..	..	393	297	32	..
21	Rawalindi ..	307	261	63	64	..	..	..	..	325	331	67	..
22	Attock	433	426	15	21	..	..	..	..	352	354	30	..
23	Mianwali ..	412	355	25	25	..	..	..	..	358	329	30	..
24	Montgomery ..	223	256	89	70	21	11	4	5	267	218	101	..
25	Faisalpur ..	238	203	100	133	14	18	..	..	246	230	102	..
26	Jhang	188	183	95	118	..	..	..	..	251	209	75	..
27	Mul'an	379	413	169	175	1	1	10	12	495	374	120	..
28	Muzaffargarh ..	355	332	46	35	..	..	..	..	419	255	41	..
29	Dera Ghazi Khan ..	282	283	23	36	..	..	1	..	279	219	31	..
	Total	8,954	8,410	7,872	7,635	298	236	52	46	9,743	7,696	9,350	8,000
	Population according to Census of 1921.	794,114	666,352	643,616	511,228	22,481	17,177	361	265	568,025	486,332	474,779	386,000
	Ratio per 1,000 living for the Province.	11.28	12.62	12.23	14.93	13.26	13.74	14.04	173.58	17.15	15.82	19.76	20.00

No. IV—CONTINUED.

PERIODS IN THE DISTRICTS OF THE PUNJAB DURING THE YEAR 1928.

				12								13				
FIFTY YEARS.				FIFTY YEARS AND UNDER SIXTY YEARS.								SIXTY YEARS AND UPWARDS.				
Indian Christians		Other Classes.		Muhammadans.		Hindus.		Indian Christians.		Other Classes.		Muhammadans.		Hindus.		Number.
Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	
97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	
..	..	..	..	421	331	1,010	802	..	..	..	...	541	442	1,996	1,565	1
..	1	..	..	78	88	547	455	1	..	...	...	141	126	835	677	2
..	1	..	..	27	179	536	342	1	..	...	...	126	110	230	222	3
..	..	..	...	223	202	446	403	...	...	...	..	270	208	545	422	4
..	..	..	..	235	159	428	292	1	..	..	..	398	345	1,542	1,237	5
..	1	..	..	8	9	33	1	1	..	..	..	12	3	62	49	6
..	..	..	..	95	125	1,376	1,000	1	..	..	..	107	84	1,534	1,198	7
3	..	..	..	283	187	606	435	3	4	..	..	832	563	2,112	1,540	8
..	..	..	..	231	156	342	260	..	..	..	...	1,084	841	1,323	1,005	9
2	..	...	1	302	282	381	405	2	4	..	..	222	281	517	334	10
1	1	..	..	1,244	910	1,337	1,131	..	1	..	..	715	674	1,147	745	11
62	69	..	..	459	306	292	130	39	37	..	..	1,366	1,263	796	452	12
13	11	30	27	408	464	662	553	18	14	21	23	766	700	1,109	810	13
31	16	..	..	413	246	418	259	28	34	..	..	1,077	696	1,122	783	14
61	64	..	..	494	383	221	201	46	42	...	1	377	284	129	124	15
44	45	..	2	453	348	195	151	71	54	1	..	323	308	130	79	16
29	26	7	6	142	109	140	91	33	27	8	6	745	558	247	143	17
..	1	...	..	513	330	62	56	2	..	..	..	1,619	1,217	253	144	18
5	2	2	..	394	310	68	57	8	5	1	2	1,278	912	194	129	19
..	..	..	..	406	295	39	28	..	..	..	..	1,272	950	139	119	20
..	..	..	..	452	457	73	64	..	1	..	..	1,082	1,005	109	115	21
..	..	..	..	445	346	25	30	..	..	...	...	1,133	826	25	38	22
..	..	..	..	330	311	50	34	..	..	..	..	830	520	25	30	23
19	12	1	2	356	345	125	114	10	8	..	..	862	718	451	282	24
14	13	..	1	257	180	92	70	14	10	..	..	927	699	454	339	25
..	..	..	..	313	177	67	82	..	..	..	..	907	615	63	90	26
2	2	11	6	402	356	117	106	..	1	8	7	1,335	885	160	143	27
..	..	..	..	297	226	51	48	..	..	1	..	322	212	76	85	28
..	..	2	..	41	168	43	26	..	..	1	..	852	316	80	62	29
286	265	53	45	10,152	7,996	9,772	7,651	279	242	41	39	20,931	16,361	17,405	12,961	
5,069	12,104	264	261	397,365	320,366	339,811	26,590	9,704	7,704	160	156	437,197	321,889	334,927	253,383	
18.98	21.89	200.76	172.41	25.55	24.96	28.76	29.25	28.75	31.41	256.25	250.00	47.88	50.83	51.97	51.15	

DEATHS REGISTERED BY SEXES AND CLASSES ACCORDING TO SPECIFIED AGE

1	2	3				14					
Number.	DISTRICTS.	SIXTY YEARS AND UPWARDS CONCLUDED.				TOTAL.					
		Indian Christians.		Other Classes.		Muhammadans.		Hindus.		Indian Christians.	
		Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
1	2	113	114	115	116	117	118	119	120	121	122
1	Hissar ...	...	...	...	...	3,796	3,108	7,655	6,350	...	...
2	Rohtak ...	...	...	...	...	1,597	1,365	8,192	6,848	6	4
3	Gurgaon ...	...	...	...	...	3,665	3,184	7,478	6,475	3	1
4	Karnal ...	...	...	...	...	2,525	2,325	7,429	6,156	...	1
5	Ambala ...	1	...	...	...	2,498	2,341	6,711	5,980	4	1
6	Simla ...	...	...	...	...	81	83	464	350	13	9
7	Kangra ...	...	...	...	...	880	943	12,510	11,443	4	2
8	Hoshiarpur ...	5	2	...	...	4,227	3,853	9,878	8,820	29	24
9	Jullundur ...	...	...	...	...	4,605	4,243	6,027	5,741	...	...
10	Ludhiana ...	2	2	...	...	2,721	2,431	4,721	4,502	16	14
11	Ferozopore ...	...	...	...	...	5,937	4,915	7,047	6,051	11	12
12	Lahore ...	49	48	...	...	9,263	8,876	5,560	3,820	453	443
13	Amritsar ...	12	9	24	21	6,251	5,769	7,663	6,679	112	100
14	Gurdaspur ...	120	108	...	...	6,396	5,838	6,479	5,556	488	456
15	Sialkot ...	33	36	...	...	6,945	6,113	3,522	3,204	694	641
16	Gujranwala ...	37	31	...	1	6,028	5,199	1,776	1,354	643	430
17	Sheikhupura ...	47	33	25	13	4,774	3,983	1,913	1,515	473	366
18	Gujrat ...	6	3	3	2	8,348	7,168	1,165	982	25	14
19	Shahpur ...	18	26	8	10	7,332	6,484	1,206	1,025	136	96
20	Jhelum ...	...	...	...	...	5,591	4,860	590	534	2	5
21	Rawalpindi ...	2	2	...	...	5,952	5,494	830	850	16	9
22	Attock ...	...	...	...	...	5,964	5,311	325	268	1	...
23	Mianwali ...	...	...	...	...	4,565	4,001	339	344	...	...
24	Montgomery ...	16	10	3	...	6,373	5,439	2,632	2,326	140	97
25	Lyallpur ...	58	43	1	...	7,149	6,562	3,333	3,186	430	411
26	Jhang ...	...	...	...	...	5,141	4,705	1,103	948	...	...
27	Multan ...	8	7	9	5	8,043	6,783	1,930	1,853	59	50
28	Muzaffargarh ...	...	...	...	1	5,414	4,418	760	638	...	...
29	Dera Ghazi Khan ...	...	...	1	1	3,918	3,091	614	516	...	...
	Total ...	420	363	74	54	145,973	128,885	119,852	104,360	3,768	3,189
	Population according to Census of 1921.	11,268	7,482	147	146	...	...	...	...	...	...
	Ratio per 1,000 liv- ing for the Pro- vince.	37.27	48.52	503.40	369.86	...	...	...	...	...	...

No. IV—CONCLUDED.

PERIODS IN THE DISTRICTS OF THE PUNJAB DURING THE YEAR 1923.

15												
RATIO OF DEATHS PER 1,000 OF POPULATION.												
<i>Other Classes.</i>		<i>Muhammadans.</i>		<i>Hindus.</i>		<i>Indian Christians.</i>		<i>Other Classes.</i>		<i>Total.</i>		<i>Number.</i>
<i>Males.</i>	<i>Females.</i>	<i>Males.</i>	<i>Females.</i>	<i>Males.</i>	<i>Females.</i>	<i>Males.</i>	<i>Females.</i>	<i>Males.</i>	<i>Females.</i>	<i>Males.</i>	<i>Females.</i>	
123	124	125	126	127	128	129	130	131	132	133	134	1
..	..	33·63	30·16	23·76	22·90	..	..	..	..	26·29	24·83	1
..	..	24·39	22·92	23·63	23·51	1·16	0·83	..	..	23·47	23·15	2
..	..	31·61	31·55	29·77	30·45	4·93	1·77	..	..	30·30	30·74	3
..	..	19·90	25·99	22·86	23·25	..	0·64	..	..	21·94	22·61	4
..	..	23·54	26·92	26·61	31·10	2·44	0·70	..	..	25·52	29·62	5
1	..	17·57	66·72	21·65	31·30	26·69	27·36	0·94	..	20·25	33·14	6
..	..	41·85	54·79	33·78	32·45	25·17	14·08	..	..	34·07	33·35	7
..	..	27·24	28·73	25·93	30·11	19·08	14·48	..	..	23·36	29·61	8
..	..	23·37	25·57	24·04	29·28	..	..	..	..	23·62	27·47	9
3	3	25·49	28·20	22·35	27·82	18·74	19·20	150·00	100·00	23·40	27·94	10
5	3	22·86	22·75	20·96	23·02	5·41	7·83	4·75	16·85	21·70	22·85	11
..	..	25·94	31·13	21·92	21·84	20·17	23·55	..	..	24·00	27·37	12
258	223	26·86	30·26	27·49	31·29	17·00	17·74	697·30	..	27·55	31·17	13
..	..	27·64	30·60	29·69	31·80	27·25	31·16	..	..	28·58	31·16	14
1	1	24·05	24·82	22·95	25·48	24·21	26·17	0·76	6·80	23·64	25·10	15
11	9	24·48	26·40	20·35	20·56	42·47	35·68	189·66	142·86	24·26	25·44	16
153	81	21·29	21·99	17·37	18·36	24·39	27·40	593·02	455·06	24·82	21·45	17
7	9	22·69	21·00	19·63	18·65	20·13	13·33	200·00	180·00	21·76	21·20	18
68	54	22·65	23·81	19·43	20·31	21·90	19·29	?	?	22·30	23·36	19
..	..	26·27	23·20	21·52	20·92	10·05	40·00	..	..	25·71	22·96	20
1	..	24·69	25·47	18·23	27·39	9·63	9·70	0·25	..	23·26	25·58	21
1	..	24·96	23·66	14·29	12·56	8·70	..	5·29	..	24·01	22·68	22
..	..	28·08	27·35	12·48	15·77	..	..	..	..	25·81	25·83	23
39	37	22·68	23·44	24·70	27·76	14·40	21·09	936·98	..	23·35	24·65	24
1	4	23·14	25·83	17·46	22·68	18·83	22·10	19·61	85·11	20·83	24·60	25
..	..	20·04	21·50	22·63	20·57	..	..	..	..	20·44	21·33	26
125	76	20·28	20·42	22·87	28·39	25·20	25·01	105·84	55·83	20·96	21·93	27
1	1	20·17	19·64	19·02	18·33	..	..	4·81	125·00	20·01	19·46	28
17	9	17·28	16·74	20·08	20·23	..	..	?	..	17·67	17·23	29
692	515	23·75	24·70	24·58	26·41	22·80	23·39	41·20	76·44	24·12	25·44	
..	..	..	..	..	..	..	..	..	..	..	..	
..	..	..	..	..	..	..	..	..	..	..	..	

*Figures incorrect due to misclassification.

NOTE.—The population of Military Cantonnments by different ages cannot be excluded as it is not shown separately in the census returns.

ANNUAL FORM No. V.

CANCELLED AND INCORPORATED IN ANNUAL FORM No. IV.

ANNUAL FORM No. VI.

**DEATHS REGISTERED FROM DIFFERENT CAUSES AND BIRTHS REGISTERED IN THE
DISTRICTS (RURAL CIRCLES) OF THE PUNJAB DURING THE YEAR 1928.**

DEATHS REGISTERED FROM DIFFERENT CAUSES AND BIRTHS REGISTERED IN T

1	2	3	4				5	6	7	8	9	10				
Number.	RURAL CIRCLES.	Population according to Census of 1921.	BIRTHS.				Cholera.	Small-pox.	Plague.	Fever.	Dysentery and Diarrhoea.	Respiratory diseases.	Suicide.			
			Male.	Female.	Total.	Birth rate per 1,000 of population.							Males.	Females.		
															1	2
AMBALA DIVISION.																
1	Hissar ...	72,146	18,626	16,702	35,328	48.52	3	373	477	10,072	320	1,775	3			
2	Rohtak ...	696,915	16,769	15,237	32,006	45.93	46	283	303	10,739	82	1,069	8			
3	Gurgaon ..	62,926	15,719	14,601	30,400	48.57	47	8	371	11,763	183	1,455	15			
4	Karnal ...	747,506	17,200	15,491	32,691	43.73	7	51	354	10,315	163	1,192	3			
5	Ambala ...	578,853	14,174	12,787	26,961	46.57	90	36	1,441	5,303	90	5,779	..	..		
6	Simla ...	14,788	208	168	376	25.43	..	1		113	10	..	..	..		
JULLUNDUR DIVISION.																
7	Kangra ...	754,151	14,841	14,157	28,998	38.45	1,447	118	...	10,509	3,235	5,002	5			
8	Hoshiarpur ...	865,376	21,527	19,118	40,645	46.97	18	911	1,475	16,899	4	2,227	2			
9	Jullundur ..	703,001	18,280	17,023	35,303	49.82	6	82	147	12,459	119	1,326	9			
10	Ludhiana ...	484,267	12,543	11,763	24,306	50.19	1	58	22	7,188	93	892	3	..		
11	Ferozepore ...	982,160	22,569	19,886	42,455	43.23	15	189	8	12,435	131	1,921	3	..		
LAHORE DIVISION.																
12	Lahore	766,738	18,957	16,613	35,630	46.47	9	804	576	11,260	132	1,131	7			
13	Amritsar ...	743,126	20,316	18,349	38,665	52.03	31	255	37	13,473	195	1,814	11			
14	Gurdaspur ...	776,387	20,415	18,950	39,365	50.70	4	179	1,843	10,589	408	3,262	4			
15	Sialkot ...	755,553	18,825	17,539	36,364	48.13	4	532	318	12,027	171	2,290	3			
16	Gujratwala	631,961	14,214	12,918	27,132	51.00	3	615	14	9,739	75	465	5			
17	Sheikhpura ..	587,523	15,424	13,235	28,659	48.78	18	481	23	9,260	36	382	1			
RAWALPINDI DIVISION.																
18	Gujrat ...	778,026	17,115	15,184	32,299	41.51	...	789	1	11,305	101	1,801	2			
19	Shahpur ...	655,536	15,599	13,880	29,479	44.97	6	317	...	10,290	210	1,320	..	..		
20	Jhelum ...	443,892	9,622	8,763	18,385	41.43	...	71	..	7,495	104	1,033	3			
21	Rawalpindi ...	483,045	10,757	9,548	20,305	42.04	...	97	...	7,591	1,668	1,159	2			
22	Attock ...	486,533	11,984	9,632	20,616	42.37	...	103	1	9,027	19	614	3	..		
23	Mianwali ...	328,270	8,733	7,968	16,701	50.88	5	9	...	7,077	16	316	3			
MULTAN DIVISION.																
24	Montgomery ...	674,976	10,084	14,739	31,823	47.15	100	409	...	12,536	51	309	3			
25	Lyalpur ...	882,310	25,726	23,670	49,396	55.98	3	481	...	14,832	46	347	4			
26	Jhang ...	518,862	12,995	11,559	24,554	47.32	1	63	...	7,131	73	565	2	..		
27	Multan ...	779,519	20,046	16,910	36,956	47.41	1	87	...	12,827	32	355	4			
28	Muzaffargarh ...	536,715	11,147	9,249	20,396	38.00	12	34	1	9,439	16	103	2			
29	Dera Ghazi Khan	425,630	8,622	7,061	15,683	36.85	1	48	...	6,313	73	135	3			
Total ...																
		18,341,231	449,117	402,760	851,877	46.45	1,878	7,484	7,412	2,90,526	7,856	40,039	113	9		

VI.-A. (RURAL CIRCLES).

STRICTS (RURAL CIRCLES) OF THE PUNJAB DURING THE YEAR 1928.

				12	13	14											15
				All other causes.	Total deaths from all causes.	RATIO OF DEATHS PER 1,000 OF POPULATION.											Number.
			Cholera.			Small-pox.	Plague.	Fevers.	Dysentery and Diarrhoea.	Respiratory diseases.	Injuries.	All other causes.	From all causes.				
Snake-bite and killed by wild beasts.	Rabies.	Total.											For the year.	Mean of previous five years.			
6	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
68	1	.	180	4,525	17,725	0.004	0.51	0.66	13.83	0.44	2.44	0.25	6.21	24.34	34.10	1	
93	29	1	241	3,055	15,818	0.07	0.41	0.43	15.41	0.12	1.53	0.35	4.38	22.70	48.37	2	
05	39	...	2.8	5,225	19,340	0.08	0.01	0.59	18.79	0.29	2.32	0.46	8.35	30.90	38.40	3	
12	21	...	142	3,504	16,318	0.01	0.07	0.47	14.47	0.22	1.59	0.19	4.81	21.83	47.22	4	
.	...	...	...	3,083	15,822	0.16	0.06	2.49	9.16	0.16	9.98	..	5.33	27.33	36.52	5	
.	1	...	1	284	409	...	0.07	...	7.64	0.68	..	0.07	19.20	27.66	20.45	6	
38	33	8	785	4,461	25,557	1.92	0.16	...	13.93	4.29	6.63	1.04	5.92	33.89	30.19	7	
63	25	3	196	3,498	25,228	0.02	1.05	1.70	19.53	0.004	2.57	0.23	4.04	29.15	31.49	8	
78	7	1	198	3,412	17,749	0.01	0.12	0.21	17.58	0.17	1.87	0.28	4.82	25.05	29.65	9	
67	5	2	77	3,983	12,314	0.032	0.12	0.05	14.84	0.19	1.84	0.16	8.22	25.43	32.71	10	
95	22	7	327	6,729	21,755	0.32	0.19	0.003	12.66	0.13	1.96	0.33	6.85	22.15	30.28	11	
28	32	6	276	4,338	18,526	0.01	1.05	0.75	14.69	0.17	1.48	0.36	5.66	24.16	33.29	12	
80	19	8	221	4,241	20,267	0.04	0.34	0.05	18.13	0.26	2.44	0.30	5.71	27.27	38.33	13	
50	7	2	164	6,565	23,014	0.01	0.23	2.37	13.64	0.53	4.20	0.21	8.46	29.64	35.86	14	
43	14	1	162	2,924	18,428	0.01	0.70	0.42	15.92	0.23	3.03	0.21	3.87	24.39	45.36	15	
76	85	6	274	1,870	13,055	0.01	1.16	0.03	18.31	0.14	0.87	0.52	3.52	24.54	40.83	16	
71	61	5	241	2,431	12,892	0.03	0.82	0.04	15.80	0.06	0.65	0.41	4.14	21.94	31.83	17	
86	20	3	214	2,263	16,474	..	1.01	0.061	14.53	0.13	2.31	0.28	2.91	21.17	40.07	18	
17	36	4	257	2,479	14,879	0.01	0.48	..	15.70	0.32	2.01	0.26	3.78	22.70	26.19	19	
57	38	2	202	1,839	10,744	..	0.16	..	16.89	0.23	2.33	0.46	4.14	24.21	30.95	20	
57	30	1	192	848	11,555	..	0.20	..	15.71	3.45	2.40	0.40	1.76	23.92	28.00	21	
47	22	...	172	1,472	11,408	..	0.21	0.002	18.55	0.04	1.26	0.35	3.03	23.45	27.36	22	
03	9	4	121	1,061	8,605	0.02	0.03	..	21.56	0.05	0.96	0.37	3.23	26.21	28.48	23	
45	38	5	295	2,461	16,161	0.15	0.61	..	18.57	0.08	0.46	0.44	3.65	23.94	27.39	24	
56	15	7	284	4,404	20,397	0.003	0.55	..	16.81	0.05	0.39	0.32	4.99	23.12	28.38	25	
62	33	2	199	2,445	10,477	0.001	0.12	..	13.74	0.14	1.09	0.38	4.71	20.19	27.72	26	
83	59	2	329	2,476	16,107	0.001	0.11	..	16.46	0.04	0.46	0.42	3.18	20.66	27.09	27	
59	67	3	232	707	10,544	0.02	0.06	0.001	17.59	0.03	0.19	0.43	1.32	19.65	29.37	28	
77	40	...	127	388	7,085	0.002	0.11	..	14.83	0.17	0.32	0.30	0.91	16.65	26.84	29	
296	808	83	6,397	87,061	4,48,653	0.10	0.41	0.40	15.84	0.43	2.18	0.35	4.75	24.46	33.69	..	

DEATHS FROM DIFFERENT CAUSES AND BIRTHS REGISTERED IN THE TO

1	2	3	4				5	6	7	8	9	10
Number.	Towns.	Population according to Census of 1921.	BIRTHS.									
			Males.	Females.	Total.	Birth rate per 1,000 of population.	Cholera.	Smallpox.	Plague.	Fevers.	Dysentery and Diarrhoea.	Respiratory diseases.
1	2	3	4	5	6	7	8	9	10	11	12	13
HISSAR DISTRICT.												
1	Hissar	21,415	472	409	881	41.4	2	187	..	216	9	144
2	Hansi	15,425	415	366	781	50.63	..	7	3	196	19	89
3	Bhiwani	33,270	745	679	1,424	42.80	..	9	53	339	49	124
4	Sirsa	16,241	245	255	500	30.79	..	4	219	100	21	101
5	Fatehabad	2,313	45	48	93	40.21	..	..	..	23	..	9
ROHTAK DISTRICT.												
6	Rohtak	25,240	678	562	1,240	49.18	6	20	1	281	24	126
7	Jhajjar	10,800	292	271	563	52.13	..	88	..	55	7	64
8	Beri	7,454	204	206	410	55.00	..	..	1	92	15	23
9	Gohana	5,107	111	103	214	41.90	1	1	..	74	4	32
10	Bahadurgarh	5,955	181	156	337	50.59	..	2	157	71	3	31
11	Sonepat	12,981	325	322	647	49.84	..	..	..	235	8	56
12	Mehm	7,820	189	144	333	42.58	..	5	..	65	16	77
GURGAON DISTRICT.												
13	Rewari	23,129	562	556	1,118	48.34	..	2	1	220	16	92
14	Palwal	9,352	228	218	446	47.69	1	1	..	138	12	23
15	Firozpur	4,542	115	100	215	47.34	..	3	..	99	16	19
16	Hodal	5,854	141	157	298	50.91	..	..	..	83	2	11
17	Ballabgarh	3,721	92	97	189	50.79	..	..	..	49	3	20
18	Faridabad	4,337	110	82	192	44.27	7	..	..	54	9	8
19	Hadayatpur Chhaoni	5,142	66	52	118	22.95	..	..	..	23	7	23
KARNAL DISTRICT.												
20	Karnal	22,845	570	500	1,070	46.84	2	..	..	278	22	67
21	Kaithal	15,477	413	353	766	49.49	3	3	..	178	13	41
22	Panipat	27,343	706	643	1,349	49.34	1	2	3	362	20	127
23	Shahabad	11,329	297	238	535	47.22	..	..	..	138	9	38
24	Thaneesar	4,226	95	65	160	37.86	..	1	..	61	6	25
AMBALA DISTRICT.												
25	Ambala	28,581	651	600	1,251	43.77	7	3	4	202	17	133
26	Jagadhri	11,544	328	273	601	52.06	2	2	2	252	34	110
27	Burya	3,574	88	71	159	44.49	..	..	1	26	3	19
28	Sadhaura	7,630	171	156	327	42.86	..	..	..	29	10	49
29	Rupur	7,606	197	164	361	47.46	1	7	1	65	9	37
30	Kharar	4,091	89	101	190	46.44	..	1	96	34	8	30
SIMLA DISTRICT.												
31	Simla	26,149	368	321	689	26.35	..	9	..	10	18	..
KANGRA DISTRICT.												
32	Kangra	3,581	50	54	104	29.04	..	..	..	51	9	19
33	Dharamsala	3,065	47	42	89	29.04	..	1	..	24	7	24
34	Palampur	529	11	6	17	32.14	..	..	..	7	4	9
35	Nurpur	3,421	28	49	77	22.51	..	..	..	37	3	13
HOSHIARPUR DISTRICT.												
36	Hoshiarpur	21,285	491	434	925	41.46	7	11	3	258	4	121
37	Khanpur	2,701	44	66	110	40.73	1	..	..	52	..	13
38	Hariana	5,205	111	71	182	34.97	..	..	..	76	1	21
39	Garhdiwala	5,196	61	54	115	22.13	..	3	..	27	..	25
40	Dasuyah	3,889	158	132	290	74.57	..	1	..	78	..	25
41	Tanda Umar	8,362	186	162	348	41.62	..	..	3	130	..	35
42	Miani	4,934	120	71	191	38.71	..	6	1	64	1	27
43	Mukerian	2,346	79	73	152	64.79	..	18	59	20	..	21
44	Una	4,603	74	71	145	31.50	..	1	..	59	..	10
45	Anandpur	3,522	55	54	109	30.95	1	9	..	72	..	15
JULLUNDH DISTRICT.												
46	Jullundur	59,085	1,535	1,505	3,040	51.45	13	9	2	683	110	422
47	Kartarpur	8,512	222	196	418	49.11	..	..	..	140	35	48
48	Bungah	5,089	139	120	259	50.89	..	..	..	51	9	13
49	Rahon	5,947	142	106	248	41.70	..	21	..	89	3	12
50	Phillour	4,696	126	115	241	51.32	..	..	..	47	6	31
51	Nurmahal	6,845	185	167	352	51.42	..	..	..	68	5	80
52	Nakodar	9,434	218	213	431	45.69	2	7	..	116	14	44
53	Nawanshahr	5,316	124	121	245	46.09	..	3	..	89	8	23

VI.B. (TOWNS).

THE PUNJAB DURING THE YEAR 1928.

11			12	13	14										15
					RATIO OF DEATHS PER 1000 OF POPULATION.										
Snake-bite and killed by wild beasts.	Rabies.	Total.	All other causes.	Total deaths from all causes.	Cholera.	Small-pox.	Plague.	Fevers.	Dysentery and Diarrhoea.	Respiratory diseases.	Injuries.	All other causes.	From all causes.		Number.
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
1	..	1	267	826	0·09	8·73	..	10·09	0·42	6·72	0·5	12·47	38·57	41·19	1
..	..	..	182	496	..	0·45	0·19	12·71	1·23	5·77	..	11·80	32·16	59·27	2
..	..	..	675	1,249	..	0·27	1·59	10·19	1·47	3·73	..	20·29	37·54	45·58	3
..	..	..	125	570	..	0·25	13·48	6·16	1·29	6·22	..	7·70	35·10	39·27	4
..	..	..	21	53	..	..	..	9·94	..	3·89	..	9·18	22·91	49·03	5
..	1	7	189	654	0·24	6·79	0·04	11·13	0·95	4·99	0·28	7·49	25·91	36·96	6
1	1	2	112	328	..	8·15	..	5·09	0·65	5·93	0·19	10·37	30·37	51·37	7
..	..	4	59	194	..	..	0·13	12·34	2·01	13·09	0·54	7·92	26·03	46·31	8
1	..	1	31	144	0·20	0·20	..	14·49	0·78	6·27	0·20	6·07	28·20	63·87	9
..	1	1	48	313	..	0·34	26·36	11·92	0·50	5·21	0·17	8·06	52·56	47·56	10
..	..	1	46	346	..	..	..	18·10	0·62	4·31	0·08	3·54	26·65	54·05	11
..	..	..	52	215	..	0·64	..	8·31	2·05	9·85	..	6·65	27·49	38·62	12
..	..	17	202	550	..	0·09	0·04	9·51	0·69	3·98	0·74	8·73	23·78	35·00	13
..	..	4	81	260	0·11	0·11	..	14·76	1·28	2·46	0·43	8·66	27·80	47·80	14
..	..	2	58	197	..	0·66	..	21·80	3·52	4·18	0·44	12·77	43·57	42·59	15
..	..	5	70	174	..	..	..	14·69	0·34	1·88	0·86	11·96	29·72	45·88	16
..	..	2	37	111	..	..	..	13·17	0·81	5·37	0·54	9·94	29·83	44·56	17
..	..	..	21	99	1·61	..	..	12·45	2·08	1·84	..	4·84	22·83	29·93	18
..	..	..	22	75	..	..	..	4·47	1·36	4·47	..	4·28	14·59	not available.	19
..	..	..	242	611	0·09	..	..	12·17	0·96	2·93	..	10·59	26·75	46·82	20
..	..	..	115	353	0·19	0·19	..	11·50	0·84	2·65	..	7·43	22·81	55·53	21
..	..	..	237	752	0·04	0·07	0·11	13·24	0·73	4·64	..	8·67	27·50	52·85	22
..	..	..	96	281	..	..	..	12·18	0·79	3·35	..	8·47	24·80	33·77	23
..	..	..	18	121	..	0·24	..	14·43	1·42	5·92	..	6·63	28·63	29·63	24
..	..	..	74	540	0·24	0·10	0·14	7·07	0·59	4·65	..	6·09	18·89	30·01	25
..	..	..	113	615	0·17	0·17	0·17	21·83	2·95	9·53	..	9·79	44·60	48·06	26
..	..	..	53	102	..	..	0·28	7·27	0·84	5·32	..	14·83	28·54	34·81	27
..	..	..	63	151	..	..	..	3·80	1·31	6·42	..	8·26	19·79	33·27	28
..	..	..	86	205	0·13	0·92	0·13	8·55	1·18	4·86	..	11·18	26·95	35·39	29
..	..	..	31	200	..	0·24	23·47	8·31	1·96	1·33	..	7·58	48·89	not available.	30
..	..	..	555	592	..	0·34	..	0·38	0·69	..	..	21·22	22·64	18·50	31
..	..	1	3	83	..	..	..	14·24	2·51	5·31	0·28	0·84	23·18	23·85	32
..	..	..	5	61	..	0·33	..	7·83	2·28	7·83	..	1·63	19·90	20·88	33
..	..	..	3	23	..	..	..	13·23	7·56	17·01	..	5·67	43·48	31·38	34
..	..	1	9	63	..	..	..	10·82	0·88	3·80	0·29	2·63	18·42	not available.	35
1	..	10	133	547	0·33	0·52	0·14	13·12	0·19	5·68	0·47	6·25	25·70	26·69	36
..	..	3	15	84	0·37	..	..	19·15	..	4·81	1·11	5·55	31·10	34·80	37
..	..	..	16	114	..	..	..	14·60	0·19	4·03	..	3·07	21·90	24·98	38
2	..	3	22	80	..	0·58	..	5·20	..	4·81	0·58	4·23	15·40	16·90	39
..	..	1	29	129	..	0·26	..	18·77	..	6·43	0·26	7·46	33·17	52·61	40
..	..	1	28	197	..	..	0·36	15·55	..	4·19	0·12	3·35	23·56	33·87	41
..	..	2	15	116	..	1·22	0·20	12·97	0·20	5·47	0·41	3·04	23·51	32·59	42
..	1	2	17	132	..	5·54	25·15	8·53	..	8·95	0·85	7·25	56·27	53·54	43
..	..	2	29	105	..	1·09	..	12·82	..	2·17	0·43	6·30	22·51	27·24	44
..	..	..	12	109	0·28	2·56	..	20·44	..	4·26	..	3·41	30·95	26·86	45
2	..	44	371	1,654	0·22	0·15	0·03	11·56	1·86	7·14	0·74	6·28	27·99	31·03	46
..	..	5	44	2·2	..	..	..	16·45	4·11	5·64	0·59	5·17	31·95	37·62	47
..	..	3	15	91	..	..	..	10·02	1·77	2·55	0·59	2·95	17·88	22·17	48
..	..	3	11	139	..	3·53	..	14·97	0·50	2·02	0·50	1·85	23·37	30·60	49
1	..	1	46	131	..	..	..	10·01	1·28	6·80	0·21	9·86	27·90	37·61	50
..	..	7	27	187	..	..	..	9·93	0·73	11·69	1·02	3·94	27·32	29·92	51
..	..	1	58	242	0·21	0·74	..	12·30	1·48	4·66	0·11	6·15	25·65	27·95	52
..	1	2	26	151	..	0·56	..	16·74	1·50	4·33	0·38	4·89	28·40	not available.	53

ANNUAL F

DEATHS FROM DIFFERENT CAUSES AND BIRTHS REGISTERED IN THE TO

1	2	3	4				5	6	7	8	9	10
Number.	TOWNS.	Population according to Census of 1921.	BIRTHS.				Cholera.	Small-pox.	Plague.	Fevers.	Dysentery and Diarrhoea.	Respiratory diseases.
			Males.	Females.	Total.	Birth rate per 1,000 of population.						
1	2	3	4	5	6	7	8	9	10	11	12	13
LUDHIANA DISTRICT.												
54	Ludhiana	51,880	1,183	1,114	2,297	44.28	3	12	..	420	103	477
55	Jagraon	17,731	416	425	841	49.12	..	..	..	162	22	98
56	Rackot	8,379	213	196	409	48.81	..	..	..	71	3	33
57	Khanna	5,365	105	81	186	34.67	..	1	..	69	6	11
FEROZEPUR DISTRICT.												
58	Ferozepore	29,695	658	559	1,217	40.98	..	4	..	233	46	177
59	Zira	4,622	118	110	228	49.33	..	..	..	74	5	15
60	Dharmkot	5,960	145	139	284	47.65	..	..	..	76	11	33
61	Muktsar	10,539	260	262	522	49.53	..	3	..	103	9	43
62	Fazilka	13,829	324	260	584	42.23	..	1	..	242	15	111
63	Moga	14,115	270	217	487	34.43	..	9	..	128	1	30
64	Abohar	8,916	145	88	233	26.13	..	8	..	30	9	17
65	Gidarbaha	5,178	51	43	94	18.15	..	1	..	25	1	7
66	Guruharsabai	430	16	11	27	62.79	..	..	..	13	..	3
67	Jalalabad	3,833	104	104	208	54.27	..	..	..	115	4	13
LAHORE DISTRICT.												
68	Lahore	257,295	5,470	4,923	10,393	40.39	19	184	5	2,349	613	2,376
69	Chunian	7,542	166	163	329	43.05	..	16	2	109	8	43
70	Khadian	3,344	90	81	171	51.11	..	2	..	74	7	16
71	Kasur	31,018	821	764	1,585	51.10	..	4	..	325	43	134
72	Khem Karn	6,152	156	139	295	56.68	3	..	..	85	3	28
73	Patti	10,439	294	297	591	56.61	..	..	..	140	9	33
74	Baghbanpura-Bhogiwal	10,251	279	302	581	56.68	4	16	..	178	1	40
75	Ichhra	3,584	88	65	153	42.69	..	..	..	30	2	14
76	Pattoki Mandi	3,836	109	73	182	47.45	..	7	..	58	4	10
77	Kot Rai Buta Mal and Azamabad.	3,191	58	42	100	31.34	..	6	8	13	..	3
78	Niaz Beg	2,960	26	28	54	18.24	..	4	..	9	..	5
79	Padhana	4,606	105	94	199	43.20	..	..	..	73	4	16
80	Sur Singh	5,674	119	108	227	40.01	..	..	..	55	5	33
AMRITSAR DISTRICT.												
81	Amritsar	157,031	4,328	4,100	8,428	53.67	7	115	5	2,815	82	1,938
82	Majitha	5,664	144	142	286	50.49	1	13	..	78	11	23
83	Jandiala	7,464	214	176	390	52.25	..	..	..	84	11	21
84	Tarn Taran	5,988	167	145	312	52.10	..	4	..	40	11	18
85	Ram Das	3,553	113	106	219	61.64	..	1	..	88	3	6
86	Sultanwind	5,572	137	120	257	46.12	..	6	1	93	5	31
GURDASPUR DISTRICT.												
87	Gurdaspur	8,906	195	178	373	41.88	..	15	15	92	9	27
88	Dina Nagar	4,047	97	109	206	50.90	..	3	63	56	6	29
89	Pathankot	7,353	205	159	364	49.50	..	15	..	96	20	55
90	Dalbansie	1,457	12	7	19	13.04	..	..	..	15	1	12
91	Batala	26,122	816	729	1,545	59.15	..	..	4	428	26	111
92	Dera Nanak	4,333	110	99	209	48.23	1	..	..	87	4	7
93	Dhariwal	3,351	65	82	147	43.87	..	..	..	36	2	18
94	Sujanpur	4,756	112	109	221	46.47	..	..	1	56	3	32
95	Narot	2,095	53	54	107	51.07	..	..	..	15	4	25
96	Fatehgarh	4,559	117	98	215	47.16	..	..	..	47	6	10
97	Qadian	4,448	76	61	137	30.80	..	1	..	31	..	13
SIALKOT DISTRICT.												
98	Sialkot	56,018	1,594	1,561	3,155	56.32	..	6	..	715	84	507
99	Daska	6,283	135	90	225	35.81	..	..	..	38	1	3
100	Jamke	3,621	81	85	167	46.12	..	2	..	50	..	11
101	Pasrur	6,909	172	183	355	51.38	..	..	..	73	12	39
102	Zaffarwal	3,873	75	59	134	34.60	..	..	25	40	6	36
103	Narowal	5,343	169	136	305	57.08	4	3	..	79	3	59
104	Sambrial	3,324	58	54	112	33.69	..	..	..	39	..	12
105	Sahowala	3,410	56	45	101	29.62	..	..	..	25	1	2
106	Begowala	3,697	98	73	171	46.25	2	..	..	31	4	9
107	Bhopalwala	3,767	82	73	155	41.15	..	..	..	31	1	14
108	Mitrauwali	3,177	77	93	170	53.51	..	..	..	43	..	10
109	Badomali	2,849	55	53	108	37.91	..	2	..	30	..	2
110	Kalaswala	2,848	85	62	147	51.65	..	1	..	34	2	22
111	Dand	3,285	58	46	104	31.66	..	3	..	56	..	1
112	Chawinda	4,979	130	117	247	49.61	..	..	..	41	9	35
GUJRANWALA DISTRICT.												
113	Gujranwala	37,887	1,171	1,032	2,203	58.15	..	38	45	539	45	171
114	Wazirabad	18,645	380	316	696	37.33	8	5	53	226	9	68
115	Eminabad	5,816	147	126	273	46.94	..	10	..	63	2	17
116	Kila Didar Singh	2,544	66	76	142	55.82	..	..	..	28	..	13
117	Akalgarh	5,147	102	82	184	35.75	..	1	..	40	4	20
118	Ramnagar	4,632	110	81	191	41.23	..	..	..	68	4	10
119	Sobdra	4,250	115	97	212	49.88	..	..	..	57	2	9
120	Hafizabad	8,854	153	132	290	32.75	..	26	..	77	..	20
121	Pindi Bhattian	3,845	92	89	181	47.07	..	30	..	41	3	7
SHEIKHUPURA DISTRICT.												
122	Khangah Dogran	5,201	25	16	41	7.8	..	..	..	6	1	1
123	Sangla	5,961	58	31	89	14.93	..	5	..	7	..	1
124	Sharakpur	4,127	123	108	231	55.97	..	11	..	53	3	11
125	Shahkot	1,545	37	32	69	45.66	1	2	..	23	3	3
126	Chuharkhana Mandi	3,847	62	56	118	30.67	..	1	..	19	..	6
127	Nankana Sahib	11,733	148	145	293	24.97	..	1	..	41	1	12
128	Shahdara	4,998	74	59	133	28.61	..	..	..	40	..	3
129	Sheikhupura	3,487	54	46	100	28.68	3	..	..	24	2	3

I-B (TOWNS)—CONTINUED.

THE PUNJAB DURING THE YEAR 1928—CONTINUED.

			12	13	14										15
			All other causes.	Total deaths from all causes.	RATIO OF DEATHS PER 1,000 OF POPULATION.										Number.
killed by wild beasts.	Rabies.	Total.			Cholera.	Small-pox.	Plague.	Fevers.	Dysentery and Diarrhoea.	Respiratory diseases.	Injuries.	All other causes.	From all causes.		
													For the year.	Mean ratio of previous five years.	
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
..	..	6	331	1,355	0·06	0·23	..	8·10	1·99	9·19	0·12	6·44	26·12	31·68	54
..	..	3	175	450	..	..	..	8·57	1·24	5·53	0·17	9·87	25·38	35·05	55
..	..	..	84	191	..	..	..	8·47	0·36	3·94	..	10·03	22·80	30·50	56
..	..	..	14	101	..	0·19	..	12·86	1·12	2·05	..	2·61	18·83	23·34	57
..	2	9	201	670	..	0·13	..	7·85	1·55	5·96	0·30	6·77	22·56	23·93	58
..	..	..	52	146	..	..	..	16·01	1·08	3·25	..	11·25	31·59	33·97	59
..	..	2	47	169	..	..	..	12·75	1·85	5·54	0·34	7·89	28·36	34·40	60
..	1	8	72	243	..	0·23	..	10·25	0·85	4·08	0·76	6·83	23·06	31·05	61
..	..	1	79	449	..	0·07	..	17·50	1·08	8·3	0·07	5·71	32·47	36·47	62
..	..	9	66	243	..	0·64	..	9·05	0·07	2·12	0·64	4·67	17·18	17·48	63
..	..	1	14	79	..	0·90	..	3·36	1·01	1·91	0·11	1·57	8·86	19·47	64
..	1	1	7	42	..	0·19	..	4·83	0·19	1·35	0·19	1·35	8·11	7·03	65
..	..	1	3	20	..	..	..	30·23	..	6·98	2·33	6·38	46·51	Not avail-	66
..	..	1	26	159	..	..	..	30·00	1·04	3·39	0·26	6·18	41·48	able.	67
3	8	176	1,778	7,499	0·07	0·72	0·02	9·13	2·38	9·23	0·68	6·91	29·15	34·94	68
..	..	5	68	251	..	2·09	0·26	14·26	1·05	5·63	0·65	8·90	32·84	47·81	69
1	..	2	33	134	..	0·60	..	22·13	2·09	4·78	0·60	9·87	40·07	53·83	70
1	..	20	239	765	..	0·13	..	10·48	1·39	4·32	0·64	7·71	24·66	39·04	71
..	..	3	69	191	0·49	..	..	13·82	0·49	4·55	0·49	11·22	31·05	37·91	72
..	..	1	95	278	..	..	..	13·41	0·86	3·16	0·10	9·10	26·63	38·74	73
1	..	6	69	316	0·39	1·76	..	17·36	0·10	3·90	0·59	6·73	30·83	39·12	74
..	..	..	12	58	..	..	..	3·37	0·6	3·91	..	3·35	16·18	16·57	75
..	..	3	9	91	..	1·82	..	15·12	1·04	2·61	0·78	2·35	23·72	47·81	76
..	..	1	1	32	..	1·88	2·51	4·07	..	0·94	0·31	0·31	10·03	Not avail-	77
..	..	1	2	21	..	1·35	..	3·04	..	1·69	0·34	0·68	7·09	able.	78
..	..	2	30	125	..	..	..	15·85	0·87	3·47	0·43	6·51	27·14	able.	79
..	..	1	37	131	..	..	..	9·69	0·88	5·82	0·18	6·52	23·09	able.	80
2	1	106	1,040	6,068	0·04	0·73	0·03	17·93	0·52	12·34	0·68	6·37	38·64	42·32	81
..	..	1	41	168	0·18	2·30	..	13·77	1·94	4·06	0·18	7·24	29·66	38·21	82
..	..	2	38	160	..	..	..	11·25	1·47	3·35	0·27	5·09	21·44	32·82	83
..	..	..	46	119	..	0·67	..	6·68	1·84	3·01	..	7·68	19·87	19·44	84
..	..	..	9	107	..	0·28	..	24·77	0·84	1·69	..	2·53	30·12	Not avail-	85
..	..	..	35	171	..	1·08	0·18	16·69	0·90	5·56	..	6·28	30·69	able.	86
..	..	2	68	228	..	1·68	1·68	10·33	1·01	3·03	0·22	7·64	25·60	32·94	87
..	..	1	55	213	..	0·74	15·57	13·84	1·48	7·17	0·25	13·59	52·63	49·52	88
1	..	2	117	305	..	2·04	..	13·06	2·72	7·48	0·27	15·91	41·48	45·04	89
..	..	..	5	33	..	..	..	10·30	0·69	8·24	..	3·43	22·65	14·55	90
1	..	14	255	338	..	..	0·15	16·38	1·00	4·25	0·54	9·76	32·08	37·10	91
..	..	1	29	129	0·23	..	..	20·08	0·92	1·62	0·23	6·69	29·77	28·85	92
..	..	1	23	80	..	..	..	10·74	0·60	5·37	0·30	6·86	23·87	Not avail-	93
..	..	..	57	149	..	..	0·21	11·77	0·63	6·73	..	11·98	31·33	able.	94
1	..	4	23	71	..	..	..	7·16	1·91	11·93	1·91	10·98	33·89	able.	95
..	..	1	29	93	..	..	..	10·31	1·32	2·19	0·22	6·36	20·40	able.	96
..	..	..	15	60	..	0·22	..	6·97	..	2·92	..	3·37	13·49	able.	97
2	..	26	203	1,541	..	0·11	..	12·76	1·50	9·05	0·46	3·62	27·51	39·69	98
..	..	2	13	57	..	..	..	6·05	0·16	0·48	0·32	2·07	9·07	36·73	99
..	..	2	8	73	..	0·55	..	13·51	..	3·04	0·55	2·21	20·16	35·90	100
..	..	4	25	153	..	..	..	10·57	1·74	5·64	0·58	3·62	22·15	36·24	101
..	..	1	14	122	..	..	6·45	10·33	1·54	9·30	0·26	3·61	31·50	33·46	102
..	2	2	26	176	0·75	0·56	..	14·79	0·56	11·04	0·37	4·87	32·94	37·06	103
..	..	1	1	53	..	..	..	11·73	..	3·61	0·30	0·30	15·94	31·63	104
..	..	..	18	46	..	..	..	7·33	0·29	0·59	..	5·28	13·49	27·62	105
..	..	..	4	50	0·54	..	..	8·39	1·08	2·43	..	1·08	13·52	31·54	106
..	..	..	5	51	..	..	..	8·23	0·27	3·72	..	1·33	13·54	35·41	107
..	1	3	23	79	..	..	..	13·53	..	3·15	0·94	7·24	24·87	58·11	108
..	..	1	5	40	..	0·70	..	10·53	..	0·70	0·35	1·76	14·04	37·28	109
..	..	..	6	65	..	0·35	..	11·95	0·70	7·73	..	2·11	22·84	40·89	110
..	..	..	18	78	..	0·91	..	17·05	..	0·30	..	5·48	23·74	33·67	111
..	..	..	24	109	..	..	..	8·23	1·81	7·03	..	4·82	21·89	38·44	112
3	..	25	345	1,208	..	1·00	1·19	14·23	1·19	4·51	0·66	9·11	31·88	43·13	113
1	1	12	71	452	0·43	0·27	2·84	12·12	0·48	3·65	0·64	3·81	24·24	27·99	114
1	..	3	19	114	..	1·72	..	10·83	0·34	2·92	0·52	3·27	19·00	32·53	115
1	..	6	18	63	..	..	..	10·22	..	5·11	2·36	7·08	24·76	34·20	116
1	..	6	30	101	..	0·19	..	7·77	0·78	3·89	1·17	5·83	19·62	30·35	117
2	..	3	25	110	..	..	..	14·68	0·86	2·16	0·65	5·40	23·75	48·32	118
..	..	4	3	75	..	..	..	13·41	0·47	2·12	0·94	0·71	17·65	40·38	119
1	..	7	31	161	..	2·94	..	8·70	..	2·26	0·79	3·50	18·18	24·82	120
..	..	4	26	111	..	7·80	..	10·66	0·78	1·82	1·04	6·76	28·87	21·64	

DEATHS FROM DIFFERENT CAUSES AND BIRTHS REGISTERED IN THE TO

1	2	3	4				5	6	7	8	9	10
Number.	TOWNS.	Population according to Census of 1921.	BIRTHS.				Cholera.	Small-pox.	Plague.	Fevers.	Disentery and Diarrhoea.	Respiratory diseases.
			Males.	Females.	Total.	Birth rate per 1,000 of population.						
1	2	3	4	5	6	7	8	9	10	11	12	13
GUJRAT DISTRICT.												
130	Gujrat ...	21,974	589	582	1,171	53.29	2	8	2	331	22	154
131	Jalalpur ...	10,792	257	245	502	46.52	3	2	1	171	9	67
132	Kunjah ...	7,240	164	160	324	44.75	...	9	...	95	3	31
133	Dinga ...	6,014	132	97	229	38.08	..	..	...	58	3	19
SHAHPUR DISTRICT.												
134	Shahpur ...	4,590	95	92	187	40.74	..	4	..	44	8	20
135	Sahiwal ...	6,582	179	166	345	52.42	..	22	..	121	2	25
136	Bhera ...	17,027	452	410	862	50.63	2	10	..	282	25	75
137	Miani ...	5,965	120	113	233	39.06	1	2	..	106	5	4
138	Khushab ...	10,009	272	242	514	51.35	..	34	..	112	17	38
139	Sargodha ...	17,728	350	302	652	36.78	1	2	..	110	18	62
140	Shahpur Civil Station ...	2,481	38	62	100	40.31	..	2	..	10	1	38
JHELUM DISTRICT.												
141	Jhelum ...	14,422	277	237	514	35.64	3	12	16	141	8	84
142	Pind Dadan Khan ...	9,919	214	212	426	42.95	20	2	..	194	17	31
143	Chakwal ...	7,425	154	109	263	35.42	..	..	..	90	15	52
RAWALPINDI DISTRICT.												
144	Rawalpindi ...	55,251	1,308	1,198	2,506	45.36	..	17	..	694	57	355
145	Murree ...	2,397	28	26	54	22.53	..	..	..	17	2	5
ATTOCK DISTRICT.												
146	Pindigheb ...	9,419	232	188	420	44.59	..	2	..	155	4	22
147	Hazro ...	8,408	179	174	353	41.98	..	4	..	68	2	60
148	Campbellpur ...	3,669	75	87	162	44.15	..	3	..	18	..	10
MIANWALI DISTRICT.												
149	Mianwali ...	9,115	207	193	400	43.88	..	..	..	89	2	13
150	Bhakkar ...	6,193	135	131	266	42.95	1	..	..	115	3	13
151	Isa Khel ...	6,172	131	129	260	42.13	..	..	..	70	..	34
152	Kalabagh ...	8,455	195	165	360	42.58	..	..	..	144	..	20
MONTGOMERY DISTRICT.												
153	Montgomery ...	14,601	174	170	344	23.56	..	22	..	85	6	28
154	Kamalia ...	8,916	282	243	525	58.88	..	1	..	170	3	10
155	Pakpattan ...	7,218	155	123	278	38.51	7	2	..	302	6	19
156	Okara ...	4,975	74	55	129	25.93	..	2	..	22	2	7
157	Chichawatni ...	2,100	22	19	41	91.52	..	..	..	4	1	2
158	Arafwala ...	1,000	13	8	21	21.00	..	2	..	5	1	2
LYALLPUR DISTRICT.												
159	Lyallpur ...	28,136	482	389	871	30.96	1	34	..	201	5	38
160	Gojra ...	7,622	147	116	263	34.51	..	..	..	54	1	12
161	Samundri ...	1,575	53	41	94	59.68	..	1	..	29	4	8
162	Tandlianwala ...	3,674	96	75	171	46.54	..	2	..	46	..	6
163	Chak Jhumra ...	3,340	68	57	125	37.43	..	1	..	28	..	1
164	Toba Tek Singh ...	5,041	79	56	135	26.78	..	2	..	11	2	8
165	Jaranwala ...	4,244	97	78	175	41.23	..	..	..	12	..	..
JHANG DISTRICT.												
166	Jhang-Maghiana ...	30,139	880	771	1,601	53.12	..	6	..	385	50	121
167	Chiniot ...	17,519	539	556	1,095	62.52	..	5	..	283	28	68
168	Ahmadpur ...	4,045	91	86	177	43.76	..	2	..	38	5	6
MULTAN DISTRICT.												
169	Multan ...	89,162	2,180	2,094	4,274	47.94	1	10	14	1,094	242	720
170	Shujabad ...	6,730	174	152	326	48.44	..	1	..	127	5	29
171	Jhanian ...	822	14	8	22	26.76	..	..	..	3	..	..
172	Mian Channu ...	2,294	42	17	59	25.72	..	..	..	5	..	8
173	Khanewal ...	5,647	74	52	126	22.31	..	..	..	22	2	11
MUZAFFARGARH DISTRICT.												
174	Muzaffargarh ...	5,386	105	67	172	31.93	..	..	..	70	1	6
175	Khangarh ...	3,184	58	71	129	40.52	..	..	..	73	9	18
176	Alipur ...	3,434	74	62	136	39.60	..	..	..	52	15	13
177	Leiah ...	8,476	195	190	385	45.42	..	..	..	15	5	6
178	Karor ...	3,589	77	88	165	46.62	..	..	..	71	..	..
179	Kot Adu ...	5,267	96	70	166	31.52	..	..	..	56	..	4
180	Khairpur Saadat ...	2,477	40	39	79	31.89	..	..	..	46	..	4
DERA GHAZI KHAN DISTRICT.												
181	Dera Ghazi Khan ...	20,731	457	442	899	43.37	1	..	..	214	38	25
182	Jampur ...	7,317	225	174	399	54.53	..	..	..	94	8	17
183	Dajal ...	5,775	185	207	392	67.88	..	1	..	174	3	19
184	Rajanpur ...	3,864	139	128	267	67.36	..	5	..	90	3	7
185	Kot Mithan ...	3,204	70	68	138	43.07	..	..	..	53	4	4
186	Kot Chhutla ...	2,431	68	64	132	54.30	..	..	..	23	7	7
Total		21,76,375	51,280	46,773	98,053	45.05	156	1,280	870	25,709	2,647	12,600
Total of the Province		2,05,17,606	5,00,397	4,49,533	9,49,930	46.30	2,034	8,764	8,282	3,16,235	10,503	52,639

VI.B. (TOWNS)—concluded.

THE PUNJAB DURING THE YEAR 1928—concluded.

			12	13	14										15	
					RATIO OF DEATHS PER 1,000 OF POPULATION.											
Snake bite and killed by wild beasts.	Rabies.	Total.	All other causes.	Total deaths from all causes.	Cholera.	Small-pox.	Plague.	Fevers.	Dysentery and Diarrhoea.	Respiratory diseases.	Injuries.	All other causes.	From all causes.		Number.	
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
..	..	21	109	649	0.09	0.36	0.09	15.06	1.00	7.01	0.96	4.96	29.53	37.67	130	
..	2	4	38	295	0.28	0.19	0.09	15.85	0.83	6.21	0.37	3.52	27.34	45.31	131	
..	..	3	56	19	..	1.24	..	13.12	0.41	4.28	0.41	7.73	27.21	54.70	132	
1	..	4	19	103	..	..	..	9.64	0.50	3.16	0.67	3.16	17.13	21.48	133	
..	..	3	13	92	..	0.87	..	9.59	1.74	4.36	0.65	2.81	20.04	34.16	134	
..	..	4	17	191	..	3.34	..	18.38	0.30	3.80	0.61	2.58	29.02	31.90	135	
..	..	9	111	514	0.12	0.59	..	16.56	1.47	4.40	0.53	6.52	30.19	35.17	136	
..	..	7	32	157	0.17	0.34	..	17.77	0.84	0.67	1.17	5.36	26.32	33.58	137	
..	..	3	60	264	..	3.40	..	11.19	1.70	3.80	0.30	5.99	26.38	24.14	138	
..	1	4	44	211	0.06	0.11	..	6.20	1.02	3.50	0.23	2.48	13.59	13.98	139	
..	..	1	11	63	..	0.31	..	4.03	0.40	15.32	0.40	4.43	25.39	Not available.	140	
..	..	6	79	349	0.21	0.83	1.11	9.78	0.55	5.82	0.42	5.18	24.20	32.98	141	
..	..	4	24	292	2.02	0.20	..	19.56	1.71	3.13	0.40	2.42	29.44	33.25	142	
..	..	9	31	197	..	..	..	12.12	2.02	7.00	1.21	4.18	23.53	30.57	143	
..	..	62	376	1,561	..	0.31	..	12.56	1.03	6.43	1.12	6.81	28.25	34.31	144	
..	..	..	12	36	..	..	..	7.09	0.83	2.09	..	5.01	15.02	13.10	145	
..	..	4	14	201	..	0.21	..	16.46	0.42	2.34	0.42	1.49	21.34	23.19	146	
..	..	..	85	219	..	0.48	..	8.09	0.24	7.14	..	10.11	26.05	26.71	147	
..	..	..	12	43	..	0.82	..	4.91	..	2.73	..	3.27	11.72	13.74	148	
..	..	4	17	125	..	..	..	9.76	0.22	1.43	0.44	1.87	13.71	5.80	149	
..	..	3	45	180	0.16	..	..	18.57	0.48	2.10	0.48	7.27	29.07	33.84	150	
1	..	1	47	152	..	..	..	11.34	..	5.51	0.16	7.62	24.63	24.01	151	
..	..	3	20	187	..	..	..	17.03	..	2.37	0.35	2.37	22.12	26.04	152	
..	..	4	34	179	..	1.51	..	5.82	0.41	1.92	0.27	2.33	12.26	13.15	153	
1	..	3	93	280	..	0.11	..	19.07	0.34	1.12	0.34	10.43	31.40	29.65	154	
..	..	5	52	393	0.97	0.28	..	41.84	0.83	2.63	0.69	7.20	54.45	34.26	155	
..	..	1	12	46	..	0.40	..	4.42	0.40	1.41	0.20	2.41	9.25	27.82	156	
..	..	..	4	11	..	..	..	1.90	0.48	0.95	..	1.90	5.24	Not available.	157	
..	..	..	3	13	..	2.00	..	5.00	1.00	2.00	..	3.00	13.00	Not available.	158	
..	..	8	67	354	0.04	1.21	..	7.14	0.18	1.35	0.28	2.38	12.58	12.94	159	
..	1	6	22	95	..	..	..	7.08	0.13	1.57	0.79	2.89	12.46	17.66	160	
..	..	1	19	62	..	0.63	..	18.41	2.54	5.08	0.63	12.06	39.36	26.16	161	
..	..	6	2	62	..	0.54	..	12.52	..	1.63	1.63	0.54	16.88	Not available.	162	
..	..	..	17	47	..	0.30	..	8.38	..	0.30	..	5.09	14.07	Not available.	163	
1	..	1	17	41	..	0.40	..	2.18	0.40	1.59	0.20	3.37	8.13	Not available.	164	
..	..	..	6	18	..	..	..	2.83	..	..	..	1.41	4.24	Not available.	165	
6	3	9	212	783	..	0.20	..	12.77	1.66	4.01	0.30	7.03	25.95	31.34	166	
8	1	9	173	566	..	0.28	..	16.16	1.60	3.88	0.51	9.88	32.32	34.60	167	
1	1	2	18	71	..	0.49	..	9.39	1.24	1.48	0.49	4.43	17.55	29.77	168	
9	..	22	437	2,540	0.01	0.11	0.16	12.27	2.71	8.08	0.25	4.90	28.49	33.71	169	
1	..	1	43	203	..	0.15	..	18.87	0.74	4.31	0.15	6.39	39.61	34.95	170	
1	..	1	2	6	..	..	..	3.65	..	..	1.22	2.43	7.30	11.19	171	
..	..	..	4	17	..	..	..	2.18	..	3.49	..	1.74	7.41	8.11	172	
1	..	1	7	43	..	..	..	3.90	0.30	1.95	0.18	1.24	7.61	9.88	173	
..	..	..	12	89	..	..	..	13.00	0.19	1.11	..	2.23	16.52	23.06	174	
..	..	..	17	117	..	..	..	22.93	2.83	5.65	..	5.34	36.75	40.26	175	
1	..	2	5	87	..	..	..	15.14	4.37	3.79	0.58	1.46	25.33	37.22	176	
..	..	..	19	187	..	..	..	18.52	0.59	0.71	..	2.24	22.06	28.39	177	
..	..	..	13	84	..	..	..	20.06	..	..	..	3.67	23.74	40.07	178	
..	..	..	6	66	..	..	..	10.63	..	0.76	..	1.14	12.53	16.48	179	
..	..	..	8	68	..	..	..	18.67	..	1.61	..	3.23	23.42	Not available.	180	
6	..	6	99	383	0.05	..	..	10.32	1.83	1.21	0.29	4.78	18.47	25.85	181	
..	1	1	65	180	..	..	..	12.85	1.09	2.32	0.14	8.68	25.28	33.33	182	
..	..	..	57	254	..	0.17	..	30.13	0.42	3.29	..	8.87	43.08	47.62	183	
2	..	2	28	135	..	1.26	..	22.70	0.76	1.77	0.50	7.06	34.06	26.79	184	
2	1	3	13	77	..	..	..	16.54	1.25	1.25	0.94	6.06	21.03	25.53	185	
..	..	1	33	76	..	..	..	11.32	2.88	2.88	0.41	13.57	31.26	Not available.	186	
94	43	29	909	14,410	58,581	0.07	0.39	0.40	11.81	1.22	1.79	0.42	6.62	26.92	36.74	
90	851	112	7,306	101,471	507,234	0.10	0.43	0.40	15.41	0.51	2.57	0.36	4.85	24.72	33.06	

ANNUAL FORM No. VI-C.

BIRTHS AND DEATHS REGISTERED IN THE CANTONMENTS OF THE PUNJAB DURING THE YEAR 1928.

Number.	CANTONMENTS.										Population according to Census of 1921.	INJURIES.										Total deaths from all causes.	Ratio of deaths per 1,000 of population.	Total births registered during the year.	Ratio of births per 1,000 of population.	Number.
	1		2									INJURIES.														
	1	2	3	4	5	6	7	8	9	Males.		Females.	12	13	14	15	16	17	18							
1	Ambala	..	..	2	1	..	388	19	379	..	1	3	1	5	241	985	27	1,464	40	1						
2	Kasauli	..	..	..	1	..	21	3	..	..	..	..	25	25	35	85	26	75	23	2						
3	Dagshai	..	..	..	..	..	14	2	8	..	..	1	..	2	5	31	18	49	28	3						
4	Subathu	..	..	..	1	..	13	3	6	..	..	3	..	3	6	32	20	40	25	4						
5	Jutogh	..	..	..	..	..	2	..	..	..	..	..	..	..	5	7	7	6	6	5						
6	Dharmasala	..	..	..	..	..	23	11	..	..	..	..	..	..	24	58	44	79	60	6						
7	Jullundur	..	..	..	..	..	107	4	28	..	..	3	1	4	36	182	20	192	21	7						
8	Ferozepore	..	..	..	1	..	456	6	5	..	..	1	..	1	82	551	29	697	37	8						
9	Lahore	..	..	..	..	..	205	..	..	..	..	5	..	6	53	264	18	394	27	9						
10	Amritsar	..	..	..	..	..	5	..	6	..	..	..	..	..	8	19	19	39	40	10						
11	Dalbousie	..	..	..	..	..	11	1	..	..	..	..	..	..	12	24	25	28	30	11						
12	Bakloh	..	..	..	..	..	33	1	..	..	..	..	..	..	4	38	11	130	38	12						
13	Sialkot	..	..	..	..	..	27	2	..	..	..	..	..	..	92	121	17	223	31	13						
14	Jhelum	..	..	..	..	..	5	1	..	..	..	..	..	..	1	7	5	16	11	14						
15	Rawalpindi	..	..	..	2	..	107	6	81	..	..	2	..	2	63	261	9	701	25	15						
16	Campbellpur	..	..	..	..	..	18	3	10	..	..	1	..	1	..	32	8	35	8	16						
17	Murree	..	..	..	..	..	4	..	..	..	..	..	..	..	1	5	6	9	10	17						
18	Multan	..	..	..	..	..	21	1	..	..	..	..	11	11	12	48	8	91	15	18						

ANNUAL FORM No. VII.

**DEATHS REGISTERED FROM CHOLERA IN THE DISTRICTS OF THE PUNJAB
DURING EACH MONTH OF THE YEAR 1928.**

DEATHS REGISTERED FROM CHOLERA IN THE DISTRICT

1 Number.	2 DISTRICTS.	3 CIRCLES OF REGISTRATION.		4 VILLAGES.		MONTHS.					
		Number in each district.	Number from which deaths from Cholera were reported.	Number in each district.	Number from which deaths from Cholera were reported.	January.	February.	March.	April.	May.	June.
1	2	3	4	5	6	7	8	9	10	11	12
	AMBALA DIVISION.										
1	Hissar ...	27	2	960	3	...	...	...	...	...	...
2	Rohtak ...	20	7	722	12	...	...	3	...	...	...
3	Gurgaon ...	23	8	1,350	12	...	...	...	...	...	...
4	Karnal ..	24	8	1,390	6	...	...	...	2	2	...
5	Ambala ...	20	15	1,714	33	...	...	...	...	...	...
6	Simla ...	3	...	208	...	...	...	...	...	...	...
	JULLUNDUR DIVISION.										
7	Kangra ...	19	8	710	44	...	...	...	...	83	...
8	Hoshiarpur ...	23	9	2,111	18	...	...	...	...	1	...
9	Jullundur ...	17	5	1,221	4	...	...	...	...	1	...
10	Ludhiana ..	15	2	858	1	...	...	...	...	...	...
11	Ferozepore ...	29	2	1,497	2	...	...	...	...	...	...
	LAHORE DIVISION.										
12	Lahore ...	36	4	1,117	1	...	...	...	1	...	...
13	Amritsar ...	19	13	1,035	24	...	...	1	1	5	...
14	Gurdaspur ...	27	2	2,241	1	...	...	...	...	...	...
15	Sialkot ...	28	3	2,053	3	...	...	...	...	...	...
16	Gujranwala ...	22	2	1,212	2	...	...	...	...	...	...
17	Sheikhupura ...	22	9	1,212	8	...	...	...	...	1	...
	RAWALPINDI DIVISION.										
18	Gujrat ...	18	2	1,436	5	...	...	...	...	...	...
19	Shahpur ...	24	8	985	...	...	...	...	...	...	...
20	Jhelum ...	15	2	888	...	...	...	...	...	...	...
21	Rawalpindi ...	14	...	1,170	...	...	...	...	...	...	...
22	Attock ...	14	...	618	...	...	...	...	...	...	...
23	Mianwali ...	16	2	375	3	...	...	...	...	...	...
	MULTAN DIVISION.										
24	Montgomery ...	29	12	1,832	24	...	...	...	...	2	...
25	Lyallpur ...	24	2	939	2	...	...	...	...	1	...
26	Jhang ...	14	1	981	1	...	...	...	...	...	...
27	Multan ...	23	2	1,645	1	...	...	...	...	...	...
28	Muzaffargarh .	25	2	848	4	...	...	...	...	...	...
29	Dera Ghazi Khan ...	23	2	713	1	...	...	...	1	...	...
	Total ...	613	134	34,071	215	...	...	4	5	96	91

VII.

THE PUNJAB DURING EACH MONTH OF THE YEAR 1928.

						6			7			8	9
						Total.			Ratio of Deaths per 1,000 of Population.			Mean ratio per 1,000 for previous five years.	Number.
	August.	September.	October.	November.	December.	Males.	Females.	Total.	Males.	Females.	Total.		
	14	15	16	17	18	19	20	21	22	23	24	25	26
	...	...	...	5	...	2	3	5	0·004	0·01	0·01	0·12	1
28	3	...	...	...	...	33	20	53	0·08	0·06	0·07	0·06	2
8	1	...	...	...	...	33	22	55	0·09	0·07	0·08	0·14	3
2	...	3	...	2	2	8	5	13	0·02	0·01	0·02	0·05	4
28	5	...	...	15	6	66	34	100	0·18	0·12	0·16	0·09	5
	...	...	...	...	...	...	...	...	...	...	...	0·004	6
524	64	...	...	...	4	713	734	1 447	1·81	1·93	1·89	0·01	7
8	5	...	...	1	...	18	9	27	0·04	0·02	0·03	0·06	8
6	6	7	...	1	...	12	9	21	0·03	0·02	0·03	0·08	9
	3	...	...	1	...	3	1	4	0·01	0·004	0·01	0·18	10
9	...	...	...	...	...	9	6	15	0·02	0·01	0·01	0·67	11
7	15	11	1	...	...	25	10	35	0·04	0·02	0·03	0·99	12
2	8	16	2	...	...	26	13	39	0·05	0·03	0·04	0·20	13
	...	5	...	...	...	2	3	5	0·004	0·01	0·01	0·09	14
2	4	4	...	...	...	6	4	10	0·01	0·01	0·01	0·11	15
2	6	...	3	...	...	8	3	11	0·02	0·01	0·02	0·05	16
5	7	3	...	5	...	13	9	22	0·04	0·03	0·04	0·07	17
...	3	2	...	...	...	3	2	5	0·01	0·01	0·01	0·09	18
4	5	...	...	...	...	6	4	10	0·02	0·01	0·01	0·25	19
...	...	18	5	...	...	13	10	23	0·05	0·04	0·05	0·17	20
...	...	...	...	...	...	...	...	...	...	...	...	0·06	21
...	...	...	...	...	...	...	...	...	...	...	...	0·004	22
...	5	1	...	...	...	4	2	6	0·02	0·01	0·02	0·01	23
68	32	2	...	...	...	56	51	107	0·14	0·16	0·15	0·20	24
...	...	...	...	...	...	4	...	4	0·01	...	0·004	0·16	25
...	1	...	...	...	...	1	...	1	0·003	...	0·002	0·07	26
...	1	...	...	...	...	1	1	2	0·002	0·002	0·002	0·01	27
...	2	10	...	...	...	5	7	12	0·02	0·03	0·02	0·02	28
...	...	...	...	...	1	2	...	2	0·01	...	0·004	0·001	29
703	176	82	11	30	13	1,072	962	2,034	0·10	0·10	0·10	0·17	

DEATHS REGISTERED FROM SMALL-POX IN THE DISTR

1	2	3		4		MON					
Number.	DISTRICTS.	CIRCLES OF REGISTRATION.		VILLAGES.							
		Number in each dis- trict.	Number from which deaths from small- pox were reported.	Number in each dis- trict.	Number from which deaths from Small- pox were reported.	January.	February.	March.	April.	May.	June.
1	2	3	4	5	6	7	8	9	10	11	12
AMBALA DIVISION.											
1	Hissar	27	24	960	40	4	34	20	51	90	67
2	Rohtak	20	18	722	35	53	39	35	73	108	40
3	Gurgaon	23	6	1,350	7	..	..	5	6	1	..
4	Karnal	24	17	1,890	21	10	4	6	6	14	3
5	Ambala	20	12	1,714	33	5	1	3	7	10	..
6	Simla	3	2	208	1	1	..	..	..	1	4
JULLUNDUR DIVISION.											
7	Kangra	19	14	710	51	6	10	12	14	11	24
8	Hoshiarpnr	23	20	2 111	316	79	76	85	95	138	133
9	Jullundur	17	13	1,221	44	12	18	13	15	20	12
10	Ludhiana	15	12	858	29	14	4	13	7	4	3
11	Ferozepore	29	25	1,497	41	19	12	13	21	30	22
LAHORE DIVISION.											
12	Lahore	36	31	1,117	281	94	74	51	102	118	126
13	Amritsar	19	18	1,035	130	26	19	23	40	80	58
14	Gurdaspur	27	19	2,241	93	28	26	22	18	16	25
15	Sialkot	28	18	2,053	83	64	59	43	52	69	86
16	Gujranwala	22	18	1,212	215	112	73	58	53	126	117
17	Sheikhupura	22	19	1,212	67	94	53	52	51	60	64
RAWALPINDI DIVISION.											
18	Gujrat	18	17	1,436	251	70	70	66	121	105	79
19	Shahpur	24	24	985	96	21	27	12	39	41	55
20	Jhelum	15	12	888	27	9	18	4	6	7	14
21	Rawalpindi	14	12	1,170	53	18	12	4	7	11	20
22	Attock	14	12	618	80	39	6	4	4	10	4
23	Mianwali	10	3	375	8	..	..	..	1	4	2
MULTAN DIVISION.											
24	Montgomery	29	27	1,832	81	69	33	13	35	39	59
25	Lyallpur	24	22	969	199	102	40	50	66	57	87
26	Jhang	14	12	981	42	5	9	4	6	9	9
27	Multan	23	16	1,645	28	7	8	6	10	11	23
28	Muzaffargarh	25	11	848	26	7	8	2	4	..	4
29	Dera Ghazi Khan	23	13	713	23	10	3	4	8	5	5
Total		613	467	34,071	2,404	973	736	623	918	1,195	1,145

VIII.
THE PUNJAB DURING EACH MONTH OF THE YEAR 1928.

					6			7		8			9	10
					TOTAL.			NUMBER OF DEATHS AMONG CHILDREN.		RATIO OF DEATHS PER 1,000 OF POPULATION.			Mean ratio per 1,000 for previous five years.	Number.
	September.	October.	November.	December.	Males.	Females.	Total.	Under one year.	Over one year and under ten years.	Males.	Females.	Total.		
	15	16	17	18	19	20	21	22	23	24	25	26	27	28
6	...	43	39	196	296	284	580	271	223	0.68	0.74	0.71	0.42	1
13	4	1	4	9	211	188	399	88	280	0.51	0.53	0.52	0.04	2
	...	...	...	...	9	5	14	3	10	0.02	0.02	0.02	0.13	3
7	3	...	...	...	33	21	57	15	21	0.08	0.06	0.07	0.15	4
2	2	...	3	11	22	27	49	9	23	0.06	0.10	0.08	0.20	5
	1	1	1	...	7	3	10	1	1	0.25	0.22	0.24	0.12	6
4	1	14	5	6	72	47	119	14	21	0.18	0.13	0.16	0.12	7
74	25	23	50	63	471	488	959	229	385	0.94	1.14	1.03	0.74	8
7	5	1	2	5	52	70	122	43	42	0.12	0.19	0.15	0.27	9
4	...	4	3	14	41	30	71	21	31	0.12	0.12	0.13	0.40	10
11	19	5	11	23	121	94	215	69	99	0.20	0.20	0.20	0.30	11
68	37	30	67	141	538	507	1,045	262	638	0.85	1.06	0.94	0.68	12
18	8	7	25	69	206	188	394	118	202	0.40	0.46	0.42	0.44	13
14	8	15	11	13	111	102	213	71	69	0.24	0.27	0.25	0.22	14
23	19	3	21	42	295	254	549	161	241	0.62	0.64	0.63	0.43	15
29	12	6	28	27	370	355	725	246	311	1.06	1.29	1.16	0.44	16
33	9	6	19	19	257	244	501	144	248	0.73	0.88	0.80	0.48	17
29	16	31	88	74	401	407	808	259	430	0.91	1.06	0.98	0.39	18
23	9	7	27	74	203	185	393	101	220	0.53	0.58	0.55	0.47	19
	...	...	4	7	47	38	85	18	41	0.20	0.16	0.18	0.53	20
6	1	1	9	9	50	64	114	38	45	0.17	0.26	0.21	0.19	21
8	...	7	13	13	52	60	112	32	61	0.20	0.24	0.22	0.39	22
	1	...	...	1	5	4	9	2	4	0.03	0.02	0.03	0.21	23
50	14	7	13	47	233	205	438	113	237	0.59	0.64	0.61	1.18	24
22	13	7	15	30	279	242	521	181	225	0.53	0.59	0.56	0.60	25
15	6	2	2	1	45	31	76	16	30	0.15	0.12	0.13	0.22	26
8	5	3	2	5	47	51	98	29	45	0.10	0.13	0.11	0.41	27
3	1	2	...	...	18	16	34	8	13	0.06	0.06	0.06	0.30	28
3	1	3	4	3	29	25	54	15	19	0.11	0.12	0.12	0.47	29
85	220	229	466	902	4,529	4,235	8,764	2,580	4,215	0.40	0.45	0.43	0.40	

DEATHS REGISTERED FROM FEVERS IN THE DISTRICTS

1	2	3		4							
Number.	DISTRICTS.	CIRCLES OF REGISTRATION.		VILLAGES.							
		Number in each district.	Number from which deaths from Fevers were reported.	Number in each district.	Number from which deaths from Fevers were reported.	January.	February	March.	April.	May.	
1	2	3	4	5	6	7	8	9	10	11	
AMBALA DIVISION.											
1	Hissar ...	27	27	960	959	890	759	1,480	1,149	1,168	
2	Rohtak	20	20	722	722	850	753	1,002	1,247	1,323	
3	Gurgaon	23	23	1,350	1,350	1,221	1,024	1,224	1,335	1,580	
4	Karnal	24	24	1,390	1,390	1,018	813	879	1,153	1,219	
5	Anbala	20	20	1,714	1,714	371	408	441	490	413	
6	Simla	3	3	208	81	6	8	12	9	18	
JULLUNDUR DIVISION.											
7	Kangra	19	9	710	709	773	765	938	867	972	
8	Hoshiarpur	23	23	2,111	1,937	1,286	1,178	1,596	1,701	1,899	
9	Jallundur	17	17	1,221	1,069	967	876	1,122	1,159	1,306	
10	Ludhiana	15	15	858	789	524	461	582	608	786	
11	Ferozepore	29	29	1,497	1,477	1,009	943	1,244	1,344	1,166	
LAHORE DIVISION.											
12	Lahore	36	36	1,117	1,109	1,127	935	1,033	1,172	1,527	
13	Amritsar	19	19	1,035	1,034	1,280	1,174	1,269	1,243	1,567	
14	Gurdaspur	27	27	2,241	2,241	941	815	808	956	1,075	
15	Sialkot	28	28	2,053	2,053	1,199	996	1,067	880	1,118	
16	Gujranwala	22	22	1,212	1,212	1,064	890	944	785	984	
17	Sheikhupura	22	22	1,212	1,202	894	684	755	673	590	
RAWALPINDI DIVISION.											
18	Gujrat	18	18	1,436	1,011	1,120	968	953	991	1,28	
19	Shahpur	24	24	985	985	911	806	814	808	962	
20	Jhelum	15	15	888	888	730	701	684	601	560	
21	Rawalpindi	14	14	1,170	1,170	803	727	675	609	667	
22	Attock	14	14	618	618	1,095	984	845	692	647	
23	Mianwali	16	16	375	375	756	640	717	586	626	
MULTAN DIVISION.											
24	Montgomery	29	29	1,832	1,832	1,274	1,095	781	883	1,146	
25	Lyallpur	24	24	969	969	1,070	1,010	1,108	1,205	1,440	
26	Jhang	14	14	981	723	755	723	598	641	674	
27	Multan	23	23	1,645	1,645	1,398	1,242	1,220	1,297	1,520	
28	Muzaffargarh	25	25	848	833	1,023	979	932	847	933	
29	Dera Ghazi Khan	23	23	713	526	648	646	714	619	578	
Total ...		613	613	34,671	32,623	27,033	24,003	26,037	26,550	29,837	

IX.

OF THE PUNJAB DURING EACH MONTH OF THE YEAR 1928.

						6		7		8	9		
						TOTAL.			RATIO OF DEATHS PER 1,000 OF POPULATION.			Mean ratio per 1,000 for previous five years.	Number.
July.	August.	September.	October.	November.	December.	Males.	Females.	Total.	Males.	Females.	Total.		
13	14	15	16	17	18	19	20	21	22	23	24	25	26
840	755	612	719	879	760	6,052	4,894	10,946	13·89	12·08	13·40	23·33	1
913	714	609	798	892	1,011	6,279	5,333	11,612	15·04	15·03	15·04	23·91	2
871	647	648	743	736	852	6,726	5,706	12,432	18·29	18·16	18·23	20·84	3
1,169	877	843	799	656	770	6,478	5,354	11,832	14·28	14·27	14·28	29·42	4
578	429	462	458	400	535	3,044	2,867	5,911	8·43	10·20	9·21	15·32	5
10	13	14	2	14	4	50	73	123	1·81	5·47	3·00	7·61	6
821	945	1,015	918	798	903	5,673	4,955	10,628	14·43	13·33	13·90	15·16	7
1,345	1,361	1,317	1,472	1,417	1,586	9,186	8,544	17,730	18·42	19·93	19·12	22·98	8
1,134	1,333	1,158	1,253	1,164	1,153	7,000	6,742	13,742	15·55	18·55	16·89	20·79	9
736	668	578	713	688	622	4,039	3,861	7,900	12·67	15·52	13·92	19·07	10
865	1,037	970	940	1,327	1,553	7,343	6,136	13,479	12·26	12·77	12·48	19·10	11
1,268	1,343	1,145	1,193	1,322	1,333	7,772	6,986	14,753	12·21	14·55	13·22	16·32	12
1,446	1,513	1,501	1,636	1,322	1,298	8,782	7,889	16,671	16·94	19·25	17·96	24·31	13
996	962	1,011	1,122	953	970	5,926	5,622	11,548	12·67	14·79	13·62	19·87	14
1,082	1,136	1,304	1,276	1,076	1,186	6,831	6,521	13,352	14·47	16·44	15·37	20·96	15
744	969	794	849	953	1,023	5,838	5,038	10,876	16·74	18·33	17·44	22·07	16
727	768	797	758	782	961	5,143	4,350	9,493	14·64	15·69	15·11	17·45	17
982	936	930	1,011	1,055	1,184	6,369	5,591	11,960	14·52	14·50	14·51	15·40	18
863	800	797	811	1,148	1,503	5,723	5,352	11,075	14·60	16·33	15·38	15·90	19
562	580	554	695	805	900	4,103	3,817	7,920	17·06	16·24	16·65	16·75	20
655	632	560	705	851	823	4,281	4,021	8,302	14·65	16·19	15·35	16·50	21
692	645	580	718	782	948	4,861	4,407	9,268	16·55	17·91	18·24	19·96	22
521	546	552	588	686	746	3,915	3,580	7,495	20·60	21·29	20·92	22·96	23
883	756	886	1,020	1,325	1,873	6,986	6,138	13,124	17·79	19·16	18·39	19·45	24
1,260	1,457	1,420	1,374	1,161	1,260	7,713	7,500	15,213	14·76	18·15	16·25	17·89	25
635	594	534	585	642	769	4,110	3,727	7,837	13·45	14·36	13·74	18·73	26
897	932	787	966	1,148	1,416	7,521	6,557	14,078	15·52	16·41	15·91	21·31	27
646	603	561	766	871	1,091	5,481	4,483	9,964	17·76	17·25	17·53	26·53	28
462	461	477	620	626	702	3,838	3,128	6,966	14·91	14·78	14·85	23·70	29
24,606	24,412	23,416	25,508	26,479	29,740	167,063	149,172	316,235	14·91	16·02	15·41	20·17	

DEATHS REGISTERED FROM DYSENTERY AND DIARRHŒA IN THE DISTRICT

1	2	3		4							
		CIRCLES OF REGISTRATION.		VILLAGES.							
		Number in each district.	Number from which deaths from Dysentery and Diarrhœa were reported.	Number in each district.	Number from which deaths from Dysentery and Diarrhœa were reported.	January.	February.	March.	April.	May.	June.
1	2	3	4	5	6	7	8	9	10	11	12
	AMBALA DIVISION.										
1	Hissar	27	25	960	112	38	51	44	51	52	
2	Rohtak	20	20	722	43	9	11	6	16	18	
3	Gurgaon	23	23	1,350	129	20	11	18	18	20	
4	Karnal	24	22	1,390	129	3	...	7	4	10	
5	Ambala	20	20	1,714	79	7	7	8	5	25	
6	Simla	3	2	208	10	1	...	1	...	4	
	JULLUNDUR DIVISION.										
7	Kangra	19	19	710	709	189	134	242	272	343	
8	Hoshiarpur ..	23	7	2,111	4	1	1	..	..	1	
9	Jullundur	17	17	1,221	108	16	16	16	27	40	
10	Ludhiana	15	15	958	90	9	15	14	20	24	
11	Ferozepore ..	29	27	1,497	72	2	3	10	18	41	
	LAHORE DIVISION.										
12	Lahore	36	30	1,117	73	23	29	34	80	101	
13	Amritsar	19	19	1,035	154	17	10	18	30	26	
14	Gurdaspur ..	27	25	2,241	293	29	10	16	21	67	
15	Sialkot	28	23	2,053	141	14	9	10	20	27	
16	Gujranwala ..	22	18	1,212	48	3	7	11	10	17	
17	Sheikhpura ..	22	16	1,212	21	5	3	...	...	4	
	RAWALPINDI DIVISION.										
18	Gujrat	18	17	1,136	66	9	6	3	6	18	
19	Shabpur	24	24	985	132	26	18	20	19	30	
20	Jhelum	15	15	884	88	15	5	6	8	14	
21	Rawalpindi ..	14	14	1,170	982	160	146	178	127	129	
22	Attock	14	10	618	16	3	3	...	7	2	
23	Mianwali	16	7	375	16	...	1	...	3	1	
	MULTAN DIVISION.										
24	Montgomery ..	29	24	1,832	45	4	3	1	5	8	
25	Lyallpur	24	20	969	37	4	2	2	3	4	
26	Jhang	14	14	981	59	8	9	25	7	16	
27	Multan	23	17	1,645	27	16	15	22	19	23	
28	Muzaffargarh ..	25	11	84	11	2	3	2	10	1	
29	Dera Ghazi Khan ..	23	19	713	40	16	13	10	11	11	
	Total	613	520	34,071	3,738	649	546	724	812	1,077	96

.X.

THE PUNJAB DURING EACH MONTH OF THE YEAR 1928.

						6			7			8	9
						TOTAL.			RATIO OF DEATHS PER 1,000 OF POPULATION.			Mean ratio per 1,000 for previous five years.	Number.
August.	September.	October.	November.	December.		Males.	Females.	Total.	Males.	Females.	Total.		
14	15	16	17	18		19	20	21	22	23	24	25	26
11	27	31	31	42		217	201	418	0.50	0.53	0.51	0.36	1
18	15	10	24	12		82	77	159	0.20	0.22	0.21	0.34	2
24	21	23	24	21		139	109	248	0.38	0.35	0.36	0.58	3
10	11	22	4	134		113	120	233	0.25	0.32	0.28	0.20	4
23	14	18	19	8		104	67	171	0.29	0.24	0.27	0.48	5
4	3	1	7	2		18	10	28	0.65	0.75	0.68	1.25	6
255	299	316	273	296		1,594	1,664	3,258	4.05	4.48	4.26	3.20	7
..	2	1	..	1		5	5	10	0.01	0.01	0.01	0.01	8
39	29	29	26	20		173	136	309	0.38	0.37	0.38	0.42	9
24	21	11	22	26		119	103	227	0.37	0.43	0.40	0.59	10
18	39	25	24	18		128	104	232	0.21	0.22	0.21	0.31	11
108	90	88	72	39		471	360	831	0.74	0.75	0.74	0.77	12
31	42	27	38	31		158	160	318	0.30	0.39	0.34	0.65	13
44	64	47	71	49		260	229	489	0.56	0.60	0.58	1.31	14
15	54	46	32	31		165	129	294	0.35	0.33	0.34	0.68	15
19	17	13	8	10		82	62	144	0.24	0.23	0.23	0.43	16
5	7	7	4	6		25	21	46	0.07	0.08	0.07	0.19	17
9	12	26	14	13		81	57	138	0.18	0.15	0.17	0.26	18
25	26	36	19	28		151	135	286	0.39	0.41	0.40	0.21	19
11	19	17	13	14		96	48	144	0.40	0.20	0.30	0.31	20
150	130	157	140	153		879	848	1,727	3.01	3.41	3.19	1.73	21
2	..	1	2	2		14	11	25	0.05	0.04	0.05	0.06	22
1	3	2	3	3		11	10	21	0.06	0.06	0.06	0.19	23
5	11	12	6	5		45	25	70	0.11	0.08	0.10	0.12	24
9	8	4	6	7		34	24	58	0.07	0.06	0.06	0.18	25
18	14	17	12	11		94	62	156	0.31	0.23	0.27	0.54	26
25	35	30	31	20		140	141	281	0.29	0.35	0.32	0.27	27
4	3	4	6	6		23	23	46	0.07	0.09	0.08	0.11	28
7	12	16	19	5		91	45	136	0.35	0.21	0.29	0.26	29
914	1,028	1,037	950	1,013		5,512	4,991	10,503	0.49	0.54	0.51	0.54	

DEATHS REGISTERED FROM RESPIRATORY DISEASES IN THE DISTRICT

1	2			3		4		5					
Number.	DISTRICTS.			CIRCLES OF REGISTRATION.		VILLAGES.		MONTHS.					
				Number in each district.	Number from which deaths from Respiratory Diseases were reported.	Number in each district.	Number from which deaths from Respiratory Diseases were reported.	January.	February.	March.	April.	May.	June.
1	2			3	4	5	6	7	8	9	10	11	12
AMBALA DIVISION.													
1	Hissar	..	..	27	27	960	337	234	285	337	268	229	2
2	Rohtak	..	..	20	20	722	643	185	152	138	136	111	1
3	Gurgaon	..	..	23	23	1,350	615	166	165	170	175	163	1
4	Karnal	..	..	24	24	1,390	712	179	127	85	106	182	1
5	Ambala	..	..	20	20	1,714	1,714	645	457	602	548	653	7
6	Simla	..	..	3	..	208	..	..	..	..	..	..	..
JULLUNDUR DIVISION.													
7	Kangra	..	..	19	19	716	709	363	444	432	387	468	4
8	Hoshiarpur	..	..	23	23	2,111	863	243	235	324	261	211	1
9	Jullundur	..	..	17	17	1,221	488	176	180	237	172	185	1
10	Ludhiana	..	..	15	15	858	120	184	167	144	135	160	1
11	Ferozepore	..	..	29	29	1,497	859	218	292	239	189	155	1
LAHORE DIVISION.													
12	Lahore	..	..	36	34	1,117	517	507	522	335	301	293	2
13	Amritsar	..	..	19	19	1,035	981	360	350	361	321	350	2
14	Gurdaspur	..	..	27	27	2,241	1,632	401	335	380	296	339	2
15	Sialkot	..	..	28	28	2,053	1,207	384	375	324	248	220	2
16	Gujranwala	..	..	22	22	1,212	249	128	112	94	61	61	3
17	Sheikhpura	..	..	22	22	1 212	247	59	44	43	27	18	1
RAWALPINDI DIVISION.													
18	Gujrat	..	..	18	18	1,436	657	219	278	189	207	162	1
19	Shahpur	..	..	24	24	985	349	236	234	166	140	95	9
20	Jhelum	..	..	15	15	888	416	150	172	122	106	101	6
21	Rawalpindi	..	..	14	14	1,170	835	204	238	145	113	98	9
22	Attock	..	..	14	14	618	190	80	70	143	20	39	3
23	Mianwali	..	..	16	16	375	89	47	60	30	14	40	2
MULTAN DIVISION.													
24	Montgomery	..	..	29	29	1,832	151	65	44	36	40	22	1
25	Lyallpur	..	..	24	23	969	176	67	76	55	36	25	2
26	Jhang	..	..	14	14	981	561	71	96	101	84	60	5
27	Multan	..	..	23	22	1,645	278	142	142	100	82	72	6
28	Muzaffargarh	..	..	25	23	848	61	17	19	17	14	12	1
29	Dera Ghazi Khan	..	..	23	21	713	55	29	32	37	25	19	
Total				613	602	34,071	15,711	5,759	5,703	5,386	4,512	4,543	4,01

XI.

THE PUNJAB DURING EACH MONTH OF THE YEAR 1928.

						6			7			8	9
						TOTAL.			RATIO OF DEATH PER 1,000 OF POPULATION.			Mean ratio per 1,000 for previous five years.	Number.
July.	August.	September.	October.	November.	December.	Males.	Females.	Total.	Males.	Females.	Total.		
13	14	15	16	17	18	19	20	21	22	23	24	25	26
139	165	119	94	84	138	1,244	993	2,242	2.86	2.62	2.74	1.56	1
69	86	54	82	116	216	818	660	1,478	1.96	1.86	1.91	1.97	2
100	93	76	115	123	161	865	786	1,651	2.35	2.50	2.42	2.27	3
99	103	43	191	71	150	779	711	1,490	1.72	1.90	1.80	1.83	4
430	391	329	353	459	590	3,329	2,828	6,157	9.22	10.07	9.59	12.63	5
...	...	...	...	...	...	...	...	..	...	...	...	0.64	6
339	368	486	486	444	430	2,595	2,472	5,067	6.60	6.65	6.63	4.79	7
182	172	112	141	222	261	1,561	979	2,540	3.13	2.28	2.74	2.52	8
142	156	129	168	147	166	1,139	860	1,999	2.53	2.37	2.46	2.22	9
99	85	78	80	122	154	806	705	1,511	2.53	2.83	2.66	2.00	10
205	190	174	231	152	190	1,278	1,092	2,370	2.13	2.27	2.20	1.48	11
260	235	207	264	324	336	2,112	1,769	3,881	3.32	3.68	3.48	3.16	12
253	308	307	291	309	332	2,018	1,837	3,855	3.89	4.43	4.15	4.29	13
238	211	231	238	307	356	2,000	1,601	3,601	4.28	4.21	4.25	6.04	14
192	218	248	192	216	232	1,746	1,306	3,052	3.70	3.29	3.51	3.00	15
37	46	26	41	65	91	496	304	800	1.42	1.11	1.28	2.09	16
18	8	15	25	23	132	259	163	422	0.74	0.59	0.67	0.55	17
134	109	124	152	129	232	1,155	917	2,072	2.63	2.38	2.51	2.45	18
74	73	78	95	93	206	960	622	1,582	2.45	1.90	2.20	0.69	19
82	70	77	72	80	103	725	475	1,200	3.02	2.2	2.52	2.36	20
101	73	59	91	119	187	796	723	1,519	2.72	2.91	2.81	3.26	21
35	41	35	69	52	89	381	325	706	1.45	1.32	1.39	1.42	22
25	26	28	40	22	39	219	177	396	1.15	1.05	1.11	0.86	23
20	46	23	10	18	40	239	138	377	0.61	0.43	0.53	0.55	24
17	16	15	17	23	53	272	148	420	0.52	0.36	0.45	0.91	25
37	44	32	53	52	71	402	358	760	1.32	1.35	1.33	2.09	26
54	63	64	80	134	125	625	498	1,123	1.29	1.25	1.27	1.19	27
6	14	3	25	9	5	97	57	154	0.31	0.22	0.27	0.33	28
12	7	8	8	14	16	116	98	214	0.45	0.46	0.46	0.54	29
3,419	3,357	3,180	3,704	3,929	5,131	29,032	23,607	52,639	2.59	2.53	2.57	2.55	

DEATHS REGISTERED FROM PLAGUE IN THE DISTRICT

1	2	3		4		5					
Number.	DISTRICTS.	CIRCLES OF REGISTRATION.		VILLAGES.							
		Number in each district.	Number from which deaths from plague were reported.	Number in each district.	Number from which deaths from plague were reported.	January.	February.	March.	April.	May.	June.
1	2	3	4	5	6	7	8	9	10	11	12
AMBALA DIVISION.											
1	Hissar	27	12	960	47	50	68	245	316	72	
2	Rohtak	20	12	722	113	33	45	187	133	64	..
3	Gurgaon	23	9	1,350	22	..	1	66	293	82	..
4	Karnal	24	9	1,390	17	8	36	202	94	16	
5	Ambala	20	15	1,714	175	27	122	513	624	218	
6	Simla	3	..	208	..	..	..	..	..	..	..
JULLUNDUR DIVISION.											
7	Kangra	19	..	710	..	..	..	..	..	..	..
8	Hoshiarpur	23	11	2,111	137	54	62	324	722	342	3
9	Jullundur	17	4	1,221	15	..	3	33	61	44	
10	Ludhiana	15	5	858	20	1	..	1	9	5	..
11	Ferozepore	29	5	1,497	7	2	2	..	2	2	..
LAHORE DIVISION.											
12	Labore	36	14	1,117	39	7	38	161	226	134	2
13	Amritsar	19	6	1,035	7	..	..	13	20	8	
14	Gurdaspur	27	17	2,241	199	96	97	409	731	420	9
15	Sialkot	23	7	2,053	43	7	10	66	166	83	
16	Gujranwala	22	6	1,212	5	..	2	19	54	33	
17	Sheikhpura	22	4	1,212	7	..	..	1	17	5	..
RAWALPINDI DIVISION.											
18	Gujrat	18	3	1,436	1	..	..	..	2	2	..
19	Shahpur	24	..	985	..	..	..	..	..	..	..
20	Jhelum	15	1	888	..	..	..	..	3	10	8
21	Rawalpindi	14	..	1,170	..	..	..	..	..	..	..
22	Attock	14	1	618	1	1	..	..	..	..	..
23	Mianwali	16	..	375	..	..	..	..	..	..	..
MULTAN DIVISION.											
24	Montgomery	29	..	1,832	..	..	..	..	..	..	..
25	Lyallpur	24	..	969	..	..	..	..	..	..	..
26	Jhang	14	..	981	..	..	..	..	..	..	..
27	Multan	23	1	1,645	1	1	9	1	2	1	..
28	Muzaffargarh	25	1	848	1	..	1	..	..	..	..
29	Dera Ghazi Khan	23	..	713	..	..	..	..	..	..	..
Total		613	143	34,071	856	287	496	2,241	3,405	1,541	187

XII.

THE PUNJAB DURING EACH MONTH OF THE YEAR 1928.

						6			7			8	9
						TOTAL.			RATIO OF DEATHS PER 1,000 OF POPULATION.			Mean Ratio per 1,000 for previous five year.	Number.
August.	September.	October.	November.	December.		Males.	Females.	Total.	Males.	Females.	Total.		
14	15	16	17	18		19	20	21	22	23	24	25	26
..	..	..	..	..	..	371	381	752	0·85	0·10	0·92	3·79	1
..	..	..	..	..	..	214	248	462	0·51	0·70	0·60	15·91	2
..	..	..	..	..	..	152	220	372	0·41	0·70	0·55	3·82	3
..	..	..	..	..	..	178	179	357	0·39	0·48	0·43	9·77	4
1	..	..	..	16	9	677	868	1,545	1·88	3·09	2·41	1·80	5
..	..	..	..	..	..	..	..	..	..	..	..	..	6
..	..	..	..	..	..	..	..	..	..	..	..	0·004	7
..	..	4	..	..	..	649	892	1,541	1·30	2·08	1·66	0·49	8
..	..	..	5	..	..	47	112	149	0·10	0·28	0·18	0·14	9
..	..	..	..	6	..	10	12	22	0·03	0·05	0·04	1·03	10
..	..	..	..	..	..	2	6	8	0·003	0·01	0·01	1·62	11
..	..	..	..	..	..	285	306	591	0·45	0·64	0·53	5·35	12
..	..	..	..	..	..	15	28	43	0·03	0·07	0·05	2·99	13
3	..	13	7	10	44	904	1,022	1,926	1·93	2·69	2·27	2·45	14
2	..	..	..	2	3	159	184	343	0·34	0·46	0·39	13·68	15
..	..	..	..	..	..	67	45	112	0·19	0·16	0·18	10·18	16
..	..	..	..	..	..	8	15	23	0·02	0·05	0·04	7·89	17
..	..	..	..	..	..	3	1	4	0·01	0·002	0·004	17·92	18
..	..	..	..	..	..	..	..	..	..	..	..	3·53	19
..	..	..	..	..	..	14	2	16	0·06	0·01	0·03	6·07	20
..	..	..	..	..	..	..	..	..	..	..	..	2·15	21
..	..	..	..	..	..	1	..	1	0·003	..	0·001	1·94	22
..	..	..	..	..	..	..	..	..	..	..	..	0·003	23
..	..	..	..	..	..	..	..	..	..	..	..	1·95	24
..	..	..	..	..	..	..	..	..	..	..	..	2·96	25
..	..	..	..	..	..	..	..	..	..	..	..	0·42	26
..	..	..	..	..	..	12	2	14	0·02	0·01	0·02	0·23	27
..	..	..	..	..	..	1	..	1	0·003	..	0·002	0·02	28
..	..	..	..	..	..	..	..	..	..	..	..	0·001	29
8	..	13	11	33	62	3,769	4,513	8,282	0·34	0·48	0·40	4·44	

MONTHLY STATEMENT OF PLAGUE OCCURRENCES IN BRITISH INDIA

Serial No.	District and Punjab States.			JANUARY.		FEBRUARY.		MARCH.		APRIL.		MAY.		JUNE.	
				Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
1	2			3	4	5	6	7	8	9	10	11	12	13	14
1	Hissar	..	...	58	50	78	68	280	245	336	316	76	72	...	...
2	Rohtak	...	...	41	33	53	45	213	187	182	133	83	64	...	...
3	Gurgaon	...	...	8	...	9	1	135	63	353	223	96	82	...	...
4	Karnal	...	...	14	8	59	36	286	202	183	94	20	16	6	...
5	Ambala	...	...	59	27	388	122	1,051	513	1,004	624	410	218	1	...
6	Simla	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7	Kangra	...	...	...	...	...	...	...	...	2	...	...	...	...	...
8	Hoshiarpur	...	...	63	54	102	62	394	324	796	722	362	342	45	...
9	Jullundhr	...	...	...	...	4	3	56	33	212	61	24	44	1	...
10	Ludhiana	...	...	1	1	...	...	3	1	23	9	7	5	...	...
11	Ferozepore	...	...	9	2	6	2	...	...	3	2	2	2	...	...
12	Lahore	...	...	14	7	38	38	177	161	240	226	150	134	26	...
13	Amritsar	...	...	...	...	...	...	42	13	34	20	14	8	...	...
14	Gurdaspur	...	...	132	96	214	97	535	409	873	731	466	420	98	...
15	Sialkot	...	...	16	7	18	10	175	66	261	166	129	83	...	...
16	Gujranwala	...	...	...	...	7	2	22	19	128	54	30	33	...	...
17	Sbeikhupura	...	...	...	...	...	...	1	1	41	17	16	5	1	...
18	Gujrat	...	...	...	...	...	...	...	...	5	2	2	2	...	...
19	Shahpur	...	...	1	...	...	...	...	...	...	...	...	...	...	...
20	Jhelum	...	...	...	...	...	...	...	...	7	3	14	10	3	...
21	Rawalpindi	...	...	...	...	...	...	...	...	...	...	...	...	...	...
22	Attock	...	...	1	1	...	...	...	...	...	...	...	...	...	...
23	Mianwali	...	...	...	...	...	...	...	...	...	...	...	...	...	...
24	Montgomery	...	...	...	...	...	...	...	...	...	...	...	...	...	...
25	Lyallpur	...	...	...	...	...	...	1	...	...	...	...	...	...	...
26	Jhang	...	...	...	...	...	...	...	...	...	...	...	...	...	...
27	Multan	...	...	7	1	6	9	3	1	4	2	...	1	...	...
28	Muzaffargarh	...	...	...	...	2	1	...	...	...	...	...	...	...	...
29	Dera Ghazi Khan	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Total British Districts	...	...	424	287	984	493	3,375	2,241	4,687	3,405	1,901	1,541	181	...
1	Patiala	...	...	50	44	168	134	237	195	467	413	229	228	...	...
2	Bahawalpur	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3	Jind	...	...	...	...	42	24	45	32	66	41	13	9	...	...
4	Nabha	...	...	...	...	...	...	2	...	16	6	...	2	...	...
5	Kapurthala	...	...	...	...	...	...	...	...	6	3	16	7	23	...
6	Sirmur (Nahan)	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7	Maler Kotla	...	...	...	...	...	...	...	...	...	...	...	...	...	...
8	Faridkot	...	...	...	...	...	...	...	...	...	...	...	...	...	...
9	Pataudi	...	...	7	6	69	36	44	24	...	...	...	...	...	...
10	Kalsia	...	...	57	40	53	23	128	50	276	138	66	43	63	...
11	Dujana	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12	Nalagarh	...	...	...	...	...	...	...	...	2	1	...	...	...	...
	Total Punjab States	...	...	114	90	335	217	456	301	833	602	324	289	86	...
	GRAND TOTAL	...	...	538	377	1,319	713	3,831	2,542	5,520	4,007	2,225	1,830	267	...

1.

DISTRICTS AND PUNJAB STATES IN THE PUNJAB DURING THE YEAR 1928.

JULY.		AUGUST.		SEPTEMBER.		OCTOBER.		NOVEMBER.		DECEMBER.		TOTAL.		Serial No.	REMARKS.
Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.		
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
...	...	...	...	...	...	...	...	...	...	...	...	828	752	1	
...	...	...	...	...	...	...	...	...	...	...	...	572	462	2	
...	...	...	...	...	...	...	...	...	...	...	...	601	372	3	
...	...	...	...	...	...	...	...	...	...	...	...	568	357	4	
...	1	...	...	2	...	1	...	34	16	33	9	2,983	1,545	5	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	6	
...	...	...	...	...	...	...	...	...	...	...	...	2	...	7	
...	...	...	...	...	...	4	4	...	...	...	...	1,766	1,541	8	
...	...	...	...	...	...	...	...	...	5	...	...	297	149	9	
...	...	...	...	...	...	...	...	...	...	20	6	54	22	10	
...	...	...	...	...	...	...	...	...	...	...	...	20	8	11	
...	...	...	...	...	...	...	...	...	...	...	...	645	591	12	
...	...	...	...	...	...	...	...	...	...	...	...	90	43	13	
...	3	...	...	14	13	11	7	50	10	63	44	2,457	1,926	14	
2	2	...	...	...	...	...	...	8	2	5	3	614	343	15	
...	...	...	...	...	...	...	...	...	...	...	...	187	112	16	
...	...	...	...	...	...	...	...	...	...	...	...	59	23	17	
...	...	...	...	...	...	...	...	...	...	...	...	7	4	18	
...	...	...	...	...	...	...	...	...	...	...	...	1	...	19	
...	...	...	...	...	...	...	...	...	...	...	...	24	16	20	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	21	
...	...	...	...	...	...	...	...	...	...	...	...	1	1	22	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	23	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	24	
...	...	...	...	...	...	...	...	...	...	...	...	1	...	25	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	26	
...	...	...	...	...	...	...	...	...	...	...	...	20	14	27	
...	...	...	...	...	...	...	...	...	...	...	...	2	1	28	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	29	
2	6	...	...	16	13	16	11	92	33	121	62	11,799	8,282		
...	...	30	30	...	...	...	...	11	6	5	3	1,197	1,054	1	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	
...	...	...	...	...	...	...	...	15	14	2	1	183	121	3	
...	...	...	...	...	...	...	...	...	...	...	...	18	8	4	
...	...	...	...	...	...	...	...	...	...	...	...	45	18	5	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	6	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	7	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	8	
...	...	...	...	...	...	...	...	...	...	...	...	120	66	9	
...	...	...	...	...	...	3	2	29	12	36	21	714	372	10	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	11	
...	...	...	...	...	...	...	...	...	...	...	...	2	1	12	
...	...	30	30	...	...	3	2	55	32	43	25	2,279	1,640		
2	6	30	30	16	13	19	13	147	65	164	87	14,078	9,922		

